DOCUMENT RESUME

ED 138 733 08 CE 010 780

AUTHOR Simpson, Margaret Jean
TITLE The Relationship of Characteristics of Vocational Food Service Teachers to Their Teaching Effectiveness. Final Report.
INSTITUTION Pennsylvania Research Coordinating Unit for Vocational Education, Harrisburg.
BUREAU NO 19-5819
PUB DATE Jan 77
NOTE 173p.; Ph.D. dissertation, Lehigh University, Bethlehem, Pennsylvania

EDRS PRICE MF-$0.83 HC-$8.69 Plus Postage.
DESCRIPTORS *Academic Achievement; Age; Doctoral Theses; Educational Background; Educational Research; *Effective Teaching; *Food Service; Foods Instruction; Industry; Sex (Characteristics); Specialization; Student Attitudes; *Student Teacher Relationship; Teacher Attitudes; Teacher Background; *Teacher Characteristics; Teaching Experience; *Vocational Education Teachers; Work Experience

ABSTRACT

Research was conducted to determine the relationship between selected teacher characteristics of current food service teachers and their effectiveness as teachers. The seven teacher characteristics were age, sex, industrial experience, teacher experience, level of education, teacher perception of concern for students, and occupational specialization. Teacher effectiveness was measured by an affective criterion (Teacher's Estimate of Teacher Concern) and a cognitive criterion (Pennsylvania Competency Examination for Quantity Foods). The sample included 48 teachers from 31 vocational schools in eastern Pennsylvania and 472 students who responded to the Students' Estimate of Teacher Concern (SETC), Form B. During the spring of 1976, the Pennsylvania Competency Examination of Quantity Foods was administered to 116 advanced food service students in 17 of the original 31 schools. The data were analyzed using descriptive and inferential statistics. Findings included the following: Older teachers have more industrial experience and teaching experience than younger teachers. Those with industrial experience have less education than those without. Women have less industrial experience than men but more education and occupational specialization than men. Occupational specialization yielded a significant relationship with achievement and industrial experience a negative relationship to achievement. Correlations between SETC and the seven independent variables were low and not significant. Those between the competency exam and the independent variables produced a significant relationship between occupational specialization and achievement. Also the SETC and the Competency Exam (both used as measures of teacher effectiveness) lacked a significant relationship with each other. (Author/HD)

Documents acquired by ERIC include many informal unpublished materials not available from other sources. ERIC makes every effort to obtain the best copy available. Nevertheless, items of marginal reproducibility are often encountered and this affects the quality of the microfiche and hardcopy reproductions ERIC makes available via the ERIC Document Reproduction Service (EDRS). EDRS is not responsible for the quality of the original document. Reproductions supplied by EDRS are the best that can be made from the original.

ED138733

FINAL REPORT

THE RELATIONSHIP OF CHARACTERISTICS OF VOCATIONAL FOOD SERVICE TEACHERS TO THEIR TEACHING EFFECTIVENESS

(Project No. 19-5819)

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Margaret Jean Simpson

LEHIGH COUNTY VOCATIONAL-TECHNICAL SCHOOL
SCHNECKSVILLE, PENNSYLVANIA

January, 1977

PENNSYLVANIA DEPARTMENT OF EDUCATION
BUREAU OF VOCATIONAL EDUCATION
RESEARCH COORDINATING UNIT

2

CE 010 780

THE RELATIONSHIP OF CHARACTERISTICS OF VOCATIONAL FOOD SERVICE TEACHERS TO THEIR TEACHING EFFECTIVENESS

by

Margaret Jean Simpson

A Dissertation
Presented to the Graduate Committee
of Lehigh University
in Candidacy for the Degree of
Doctor of Edcuation

in

The School of Education

Lehigh University
1977

OE 010 780

Approved and recommended for acceptance as a dissertation in partial fulfillment of the requirements for the degree of Doctor of Education.

January 4, 1977
(date)

Jesse T. Hayes
Professor in Charge

Accepted January 4, 1977
(date)

Special committee directing the doctoral work of Margaret Jean Simpson

Jesse T. Hayes
Chairman

Laura A. Holliday

Robert L. Leight

ACKNOWLEDGMENTS

The author is especially indebted to Dr. Jerome T. Kapes, Associate Professor of Education, Lehigh University, who directed the dissertation for his support and advice.

Criticisms and suggestions from each member of the special committee were appreciated. Of special note are the encouragement and support of Dr. Laura M. Halliday, and Dr. Robert L. Leight. Appreciation is expressed also for the contributions of Dr. Norman H. Sam and Dr. A. J. Palmo.

Financial support for the administering of the Competency Exam was provided by a mini-grant from the Research Coordinating Unit, Pennsylvania Department of Education, Harrisburg, Pennsylvania.

Materials necessary for conducting this study were generously made available by faculty members of the Pennsylvania State University. Gratitude is expressed to Dr. Susan Weiss, who granted permission to use the Pennsylvania Competency Examination for Quantity Foods, Dr. Elizabeth Ray, who permitted the use of the Student's Estimate of Teacher Concern test, Form B, and to Dr. Fredrick Welch and Mr. Gerald Funk for their assistance in supplying copies of the Competency Exams and computing the item analysis.

Substantial contributions were made by Dr. Sydney Jaffe, Chief, Eastern Regional Vocational Field Service of the Pennsylvania Department of Education and the directors of the participating vocational schools for making it possible to collect the data.

Special thanks are extended to Mrs. Marianna Redd for administering the Competency Examination and to all the teachers and students who participated in the data collection.

Completion of this study has depended in great measure on the cooperation of many individuals and the author wishes to extend her gratitude.

TABLE OF CONTENTS

	Page
Acknowledgments	iii
List of Tables	vii
I. STATEMENT OF THE PROBLEM	4
Background	4
Purpose of the Study	8
Definition of Terms	13
II. REVIEW OF RELATED LITERATURE	17
Introduction	17
Teacher Effectiveness Studies	17
Studies Relating to Vocational Technical Teachers	32
Criterion Related Research	41
Teacher Concern	41
Trade Competency	47
Summary	53
III. PROCEDURE	56
Population and Sample	56
Essential Data	57
Collection of Data	57
Independent Variables	59
Dependent Variables	67
Analysis	75
IV. FINDINGS	77
Introduction	77
Question #1	77
Student and Class Information	88
Facilities and Scheduling	91
Question #2	94
Question #3	96
Question #4	99
Question #5	99
Additional Information	103
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	107
Introduction	107
Statement of the Problem	108
Procedure	110
Findings	111

TABLE OF CONTENTS (cont.)

	Page
Discussion	113
Question #1	113
Question #2	116
Question #3	117
Question #4	118
Question #5	119
Conclusions	121
Recommendations	124
Changes in the Educational System	125
Need for Further Research	127
REFERENCES	130
APPENDICES	136
A. TEACHER QUESTIONNAIRE	136
B. STUDENT'S ESTIMATE OF TEACHER CONCERN	144
C. LIST OF PARTICIPATING VOCATIONAL SCHOOLS	148
D. DATA SUMMARY OF THE TEACHERS IN THIS STUDY	151
E. RELIABILITY DATA FOR COMPETENCY EXAMINATION	154
F. STUDENT RESPONSES OF THE SETC TEST FOR EACH TEACHER	157
VITA	160

LIST OF TABLES

Table		Page
1	Comparative Teacher Data of the Sample and Sub-sample.	79
2	Means and Standard Deviations for the Sample and Sub-sample of Students Participating in the SETC and Achievement Tests.	79
3	Frequency Table for the Seven Categories of Teacher Education and Occupational Specialization of the Sample and Sub-sample.	81
4	Prior Jobs Held Most Frequently by Teachers.	82
5	What Teachers Liked Most About Previous Jobs.	83
6	What Teachers Disliked Most About Previour Jobs.	83
7	Educational Background of the Teachers.	84
8	Why Teachers Selected Teaching as a Career.	86
9	Experiences Preferred Before Becoming a Teacher.	86
10	Qualifications Teachers Need for Success.	87
11	Qualifications Students Need for a Job.	87
12	Class Size Distribution.	89
13	Production and Service of Lunch in the Restaurant and Cafeteria.	92
14	Zero Order Correlations Among the Seven Independent Variables and the Dependent Variable.	95

LIST OF TABLES (cont.)

Table		Page
15	Zero Correlations for the Selected Sub-sample Between the Seven Independent Variables and the Two Criteria Variables: SETC and Achievement.	98
16	Regression Analysis Between the Seven Independent Variables in the Full Model and the Dependent Variable Student's Estimate of Teacher Concern.	101
17	Regression Analysis Between the Seven Independent Variables in the Full Model and the Dependent Variable Achievement.	102

ABSTRACT

The purpose of this research was to determine the relationship between selected teacher characteristics of current food service teachers and their effectiveness as teachers. The seven teacher characteristics that were used include: age, sex, industrial experience, teacher experience, level of education, teacher perception of concern for students, and occupational specialization. Teacher effectiveness was measured by an affective criterion (Teacher's Estimate of Teacher Concern) and a cognitive criterion (Pennsylvania Competency Examination for Quantity Foods).

The sample included 48 teachers from 31 vocational schools in eastern Pennsylvania. A teacher questionnaire/interview was conducted during the Spring of 1975. Simultaneously, 472 students responded to the Students' Estimate of Teacher Concern (SETC) Form B, which was designed to measure their perception of their teacher's concern for them. During the Spring of 1976, the Pennsylvania Competency Examination of Quantity Foods was administered to 116 advanced food service students in 17 of the original 31 schools.

The data received from the questionnaire and Competency Exam were analyzed using descriptive and inferential statistics. A profile of the existing food service program was presented using descriptive statistics. The Pearson Product Moment Correlation and the Multiple Regression Analysis were employed to answer questions concerning the relationship of the seven independent variables and the two dependent variables. The BMD Biomedical Computer Package was used to obtain this data.

The average age of the food service teacher in this study was 38.23, average years of industrial experience was 16.02, and the average years of teaching experience was 5.8.

Older teachers have more industrial experience and teaching experience. These teachers with more industrial experience have less education. Women have less industrial experience than do men. However, they have more education and occupational specialization than men. Occupational specialization yielded a significant relationship with achievement as measured by the Pennsylvania Competency Examination for Quantity Foods. Industrial experience yielded a slightly negative relationship with achievement.

Zero order correlations were calculated between the seven independent variables and each of the dependent variables. Correlations between SETC and the seven independent variables were uniformly low and not significant at the .05 level. Correlations for the Competency Exam and the seven independent variables produced a significant relationship between occupational specialization and achievement. Additionally, the two criteria (SETC and Competency Exam) selected for measuring teacher effectiveness lacked a significant relationship with each other.

The MRA examined the total amount of predictive information available from the seven independent variables. The only partial regression coefficient yielding a significant relationship with the achievement criterion was occupational specialization at the .05 level.

Recommendations relate to either changes in the educational system or need for further research. The recommendations resulting from this study include: (1) teachers with more education and occupational specialization be selected for food service teachers in order to promote greater student achievement and (2) a longitudinal study involving a pre-test be conducted.

I

STATEMENT OF THE PROBLEM

Background

Vocational education, at the secondary level, received its first federal thrust as a viable means of education by the enactment of the Smith-Hughes Act of 1917. This act provided a continuing appropriation of federal funds for vocational education in agriculture, home economics, and trade and industrial education. Additionally, funds were available for training of teachers, supervisors, and directors in each of these fields.

Through a series of federal legislative acts, vocational education has become an important means of educating a segment of the nation's youth to attain entry into the job market.

"The function of vocational education is to prepare persons for and enable them to progress in a gainful occupation" (Roberts, 1965, p. 527). From the early concepts of vocational education, increasing demands for program additions result from the needs of a changing society. Today, vocational education offers secondary students opportunities in the following areas:

agricultural education, business education, distributive education, health occupations education, home economics education, and trade and industrial education. In most states, there are over 100 different vocational education programs from which a student can choose.

Although homemaking education was acknowledged by the Smith-Hughes Act of 1917, occupational programs were not prominent in Pennsylvania until 1955 (Department of Public Instruction, Bulletin 320, 1955). The Vocational Education Act of 1963 states that existing programs of vocational education be maintained, improved, and extended. Federal grants were made available to develop new programs of vocational education (Roberts, 1965). As a result of this authorization, programs in home economics related areas were developed and expanded. In Pennsylvania, the vocational food service program had the greatest expansion in the occupational home economics area. The program's focus was training secondary students with the skills, attitudes, and knowledge to join the work force in an entry level job in food preparation and service positions.

Curriculum has been developed to incorporate all areas of the food service business. Students develop their skills through actual or simulated on-the-job experience coupled with probes into the theoretical base of the preparation and service of food.

In general, programs consist of half day attendance encompassing three years. The first two years are usually used to develop student competencies and the third year offers the opportunity for job experience outside of the classroom. This cooperative work experience provides the student with realistic experiences in the world of work.

Advantageous to the development of the food service program has been the rapid growth of the food service industry. This growth may be due in part to the growth of other industries requiring the public to eat more meals outside of the home. The food service industry includes the foods operations of restaurants, many diverse business enterprises in which food is a secondary or minor activity, and public and private institutions. Trends over the past several years suggest that the food service industries will continue to be a growth area, especially in governmental food service programs. It has been estimated that six million people will be employed in some phase of the food service industry in 1985 (Powers, 1975).

Food industry employers hire many people without job related training. Usually these employees are employed in lower level job positions that do not re-

quire job competencies. Individuals trained in educational training programs, such as the food service programs being provided at the area vocational technical schools, have the opportunity of applying for and becoming employed in more skilled positions.

A program intent upon teaching competencies needed for entry into the job market, requires a teacher with a multi-faceted background. The teacher should be skilled in all phases of food service, knowledgable in pedagogy as well as human and public relations, and sensitive to the needs of others.

Vocational education teachers have been recruited primarily from industry. In Pennsylvania, the prospective teachers are required to have a knowledge of the trade and a willingness to work toward certification. Knowledge of the trade is acquired through sufficient trade experience (usually interpreted as 2 years of employment experience beyond the learning period). Within three years after employment, the teacher must attain a Vocational Instructional I certification, requiring 18 hours of college courses. At the end of 60 college credits in appropriate subjects and three years of teaching experience, a Vocational Instructional II certificate may be granted. This

certificate constitutes permanent certification. This 60 credit approach to certification assumes that individuals completing the program are capable of effective teaching. In addition to the Vocational Instructional I and II certification route, it is also possible to enter the profession with a Home Economics Education certification. In any case, little research has been conducted to investigate what teacher characteristics actually do relate to effectiveness in vocational education.

Purpose of the Study

The purpose of this study was to measure whether selected personal, professional, or educational teacher characteristics are clearly equatable with teaching effectiveness as defined in this study regarding food service teachers. Identification of potentially successful vocational food service teachers is a difficult task, and a search confirmed the dearth of literature concerning this group. Few studies have examined the relationship between vocational teacher characteristics as past education or work experiences and teacher effectiveness. It is therefore prudent to examine characteristics that will contribute data to the process of

decision making regarding teaching personnel.

Persons applying for a position in a vocational school are expected to exhibit competency in their trade. However, a teacher highly skilled in the trade may find that the teaching of skills alone is not sufficient. The affective domain involving teacher interpersonal relationships should also be considered. Although there are many characteristics of a teacher that are commendable and valuable, it is suggested by the present study that one of the most important characteristics of a teacher is concern for the well being of the students in the classroom and in their future occupational success. Such a display of concern for students results in a plethora of benefits. For the teacher, a positive classroom atmosphere is promoted in which students feel free to participate and thereby learn. For the student, there is the reinforcement of a positive self concept, and feeling of worth as an individual (Purkey, 1970). Combined, these two elements further enhance the effectiveness of the teacher.

As was noted earlier, a food service teacher is expected to be competent in the knowledge and skills required to develop the growth of the cognitive

abilities of the student. In addition to the development of achievement, this study accepts the premise that the teacher should also display an accepting, concerned attitude for the well-being of their students. This premise is based on the concept that a classroom, which is cognitively and affectively dynamic, stimulates the growth and achievement of students.

Reimanis (1972) stated that those teachers who felt that the student, as an individual, was more important than the subject matter, were able to demonstrate significantly better teaching effectiveness than the teacher who felt that subject matter was more important than student motivations, needs, and interests. Rogers (1962) has argued that the quality of interpersonal relationships established between the teacher and the learner has a more significant effect on learning outcome than any other variable.

This study attempted to relate teaching effectiveness to teacher characteristics. Effectiveness is defined as having two components. One component is the quality of the interpersonal relationship between the teacher and the student as perceived by the student, and measured by the Student's Estimate of Teacher Concern test. The second component is the ability to

produce educational outcomes and is measured by student performance on the written section of the Pennsylvania Competency Examination for Quantity Foods. Teacher characteristics are defined as age, sex, industrial experience, teaching experience, level of education, teacher perception of concern, and occupational specialization.

The major focus of this study was the relationship between the Student's Estimate of Teacher Concern, student achievement, and teacher characteristics. The purpose was to identify those variables that will delineate a potentially effective teacher.

The general question which this study sought to answer was: what is the relationship between selected teacher characteristics and teacher effectiveness? Specifically, this study investigated the following questions:

1. What are the general characteristics of the food service programs from which the sample was drawn?
2. What are the relationships among the seven teacher characteristic variables (i.e., age, sex, industrial experience, teaching experience, level of education, teacher perception

of concern, and occupational specialization) selected for this study?

3. What are the relationships between each of the seven teacher characteristics (i.e., age, sex, industrial experience, teaching experience, level of education teacher perception of concern, and occupational specialization) and teacher effectiveness as measured by:
    a. student's estimate of teacher concern
    b. student achievement?
4. What is the relationship between the two methods of measuring teacher effectiveness (i.e., student's estimate of teacher concern and student achievement)?
5. What is the relationship between all the teacher characteristic variables taken together and teacher effectiveness as measured by:
    a. student's estimate of teacher concern
    b. student achievement?

Definition of Terms

Achievement - refers to the total score a student receives on the written section of the Pennsylvania Trade Competency Examination for Quantity Foods.

Age - refers to the age based on a class grouping of five year intervals at the time of the survey. This five year interval was selected to protect the anonymity of the participating teachers.

Area Vocational Technical School (AVTS) - refers to those schools established to prepare pupils for "vocational industrial, vocational agricultural, vocational homemaking, business and vocational distributive occupations, technical occupations, . . . and health occupations and for any other occupations requiring vocational or technical training and education." (School Laws of Pennsylvania, 1971, p. 145).

Cooperative work experience - is an organized learning program in which students spend one half day on the job. Credit toward graduation is granted for the supervised work experience.

Educational background or level - is defined as the amount of formal education an individual

possesses at the time of this survey. The educational level is divided into the following 7 categories: (1) less than instructional I teaching certificate, (2) instructional I teaching certificate, (3) less than instructional II teaching certificate, (4) instructional II teaching certificate, (5) associate degree plus trade and industry courses, (6) bachelor degree, and (7) graduate study comparable to that required for a master's degree.

Home Economics Education Certification - includes a B.S. degree from an approved teacher education institution.

Industrial experience - is defined as the number of years of full time work experience or its equivalent related to the area of specialization possessed by teachers in this study.

Occupational Specialization - refers to the general type of employment the teacher had before becoming a teacher. The general types of categories are: (1) jobs unrelated to the food service industry, (2) semi-skilled, (3) skilled, (4) owner/manager, (5) technically trained, and (6) professional.

Student's Estimate of Teacher Concern (SETC) - is a questionnaire designed to measure how students perceive the concern of their teachers.

Teacher effectiveness - is defined in this study as the raw scores obtained on the SETC and Trade Competency Examination of Quantity Foods.

Teaching experience - is defined as the number of years of experience teaching at the secondary school levels possessed by teachers in this study at the time of the survey.

Teacher perception of concern - refers to those teachers who felt concern for the individual was the most important characteristic needed to be a successful teacher. This measure was obtained by means of a rank order question on the teachers' questionnaire.

Vocational education - refers to vocational or technical training, or retraining, which is given in schools or classes under public supervision and control or under contract with a state board or local educational agency. It is conducted as a part of a program designed to prepare individuals for gainful employment in entry level occupations that are semi-skilled, skilled, or technicians in recognized occupations (Vocational Educational Amendment Act, 1963, Roberts, 1965).

Vocational Instructional I (Provisional Certification) - refers to a certificate issued to a beginning tea-

cher upon establishing the following: sufficient employment experience, competency in the occupation to be taught, completion of an occupational competency examination or evaluation of credentials, and completing eighteen semester credit hours in an approved program of vocational teacher education in the appropriate vocational field (Pennsylvania Department of Education, 1972).

Vocational Instructional II (Permanent Certification) - refers to a permanent certificate issued to an applicant who has completed three years of satisfactory teaching on a Vocational Instructional I Certificate. In addition, the applicant for the certificate shall have completed a total of sixty semester credit hours in an approved program in the appropriate field of vocational education (Pennsylvania Department of Education, 1972).

II

REVIEW OF RELATED LITERATURE

Introduction

A review of literature on selected aspects of teaching effectiveness is presented in this chapter. The relevant literature reviewed here is grouped into three categories: (1) publications concerning the current status of teacher effectiveness research, (2) publications concerning teacher characteristics and other variables as they are related to vocational technical teachers; and (3) publications regarding the criteria selected to determine teacher effectiveness used in this study.

Teacher Effectiveness Studies

Although teacher effectiveness is given high priority in the evaluation of teachers, definitions and measurements of effectiveness still are met with conflicting reactions by members of the educational profession. Researchers are actively engaged in projects aimed at identifying and measuring elements of teacher effectiveness while practitioners often submit that teaching effectiveness cannot be measured in terms

acceptable to them. These practitioners indicate that the method for evaluating teacher effectiveness harbors too many ambiguities, for example, difficulty in obtaining rater objectivity.

Before something can be measured, it must be defined. Definitions of teacher effectiveness are varied depending on whether they are submitted by students, peers, supervisors, or administrators. Saadeh (1970) has presented some of the definitions of teaching effectiveness as viewed by current researchers. The following are examples:

> In identifying effectiveness as a criterion dimension of teachers, we imply that the purpose of our measurement or appraisal of teachers is to estimate whether they will produce desired amounts and types of changes in pupil behavior . . . Effectiveness is the degree to which an agent produces effects . . . So educational objectives become the dimension of our first major category of effect, effect on pupils (Committee on the Criteria of Teacher Effectiveness, 1952, p. 243).

> By teacher "effectiveness" is usually meant the teacher's effect on the realization of some value. Usually, the value takes the form of some educational objective, defined in terms of desired pupil behaviors, abilities, habits, or characteristics. Hence, the ultimate criterion of a teacher's effectiveness is usually considered to be his effect on his pupils' achievement of such objectives (Gage, 1963, p. 116).

> Education is a purposeful enterprise conducted to accomplish certain social and personal ends (Ralph Tyler, 1962, p. 42).

> Teaching is the expediting of learning (Skinner, 1962, p. 5).
>
> . . . teacher effectiveness, or the ability of a teacher to produce agreed-upon educational effects in a given situation or context (Biddle, 1964, p. 20).

Saadeh further states that no definition of the teaching act can assume that the test of its effectiveness does not lay in its accomplishments of the goals of education in terms of some pupil outcomes. This study defined teaching effectiveness in terms of the interrelationship of teacher and students and in pupil achievement. The instruments chosen to measure effectiveness were the Student's Estimate of Teacher Concern Test and the Pennsylvania Competency Examination for Quantity Food. Additional information regarding these instruments is found in Chapter 3.

Research concerning teacher effectiveness may be grouped into broad areas of investigation covering such topics as interaction analysis; teacher behavior and traits; motivation of students; and psychological health of the teacher. A review of the literature produced a multitude of studies relating to the subject. A selection of the research efforts reflecting the extensiveness of this topic is discussed in the following pages.

Barr (1969) presents a generalized description of the teaching process containing five major operational categories which must be of concern to those individuals evaluating teacher effectiveness. They are: (1) determining pupil need, (2) formulating educational objectives, (3) choosing means, methods, and materials, (4) guiding the learning process, and (5) evaluating outcomes.

In order to determine the effectiveness of the teaching process, Barr states that there are four commonly employed criteria in use. They are: (1) efficiency ratings; (2) pupil growth and achievement; (3) basic skills, knowledges, and attitudes; and (4) personal prerequisites to effectiveness.

Although these are the accepted criteria used in research to determine teacher effectiveness, Barr cautions that each has its limitations and presents the researcher with disadvantages if he uses them. Some of the limitations as seen by Barr include: (1) behavior may not be directly observable forcing the rater to draw inferences; (2) validity and reliability of the tests used to measure the various criteria may not be conclusive; and (3) difficulty in isolating the "teacher effect" in the results of achievement tests.

Even with these limitations presenting difficulty in controlling pertinent variables, Barr feels that there are advantages to the criteria if each is matched to the purpose of the research and the problems are acknowledged by the investigator. Barr succeeded in outlining for future researchers, categories of investigation, criteria commonly used, and pitfalls that may occur.

In a study involving 55 teachers and their 4th, 5th, and 6th grade students, Washburne (1960) explored the relationship between teacher behavior and learning. The teachers were rated on the Teacher Observation Scale, Manifold Interest Schedule, and the Teacher Education Examination. Using the results of these tests, the teachers were divided into three teacher behavior types: turbulent, self-controlling and fearful. The turbulent behavior type placed little emphasis on structure or order, but instead focused on thinking, conjecturing, and objectivity. The self-controlling teachers were identified by their focus on structure, order, and planning, as well as by being warm and empathetic toward pupils. The fearful type of teacher was anxious and variable in behavior.

The students were administered the Stanford Achievement Test and the Ohio Social Acceptance Scale.

Later in the year, they were given the Otis Group Intelligence Test, Form A and the Assessing Children's Feelings test which was developed specifically for the study. On the basis of their responses to the children's feelings test, the students were categorized as conformers, opposers, waverers, and strivers.

Washburne (1960) concluded that there was no significant relationship between teachers' scores on the Teacher Education Exam and any kind of growth on the part of their pupils. He did indicate that the three types of teacher behavior affect different types of pupils differently. For example, the self-controlled teachers have students who show less anxiety and score higher on achievement than the turbulent or fearful teachers. Apparently, teachers who are well organized, warm, and empathetic are effective in bringing about desired student objectives.

Flanders (1964) reported similar results concerning the importance of the classroom teacher. Flanders studied verbal behavior by classifying classroom communication into three categories: teacher talk, student talk, and silence or confusion. Trained observers were used in the classroom to analyze and record the verbal

behavior interaction between teacher and students. The teacher who created an environment in which praise, acceptance, and flexibility of presentation was evident, produced students who scored higher on social studies and mathematics achievement tests. This type of teacher behavior was characteristic of Flanders' indirect classroom interaction. Flanders stated that the behavior of the teacher, more than that of any other individual, sets the climate of the class.

Ryans (1960) conducted a research project sponsored by the American Council on Education. Approximately 100 different studies were carried out and over six thousand teachers were involved. Trained classroom observers were used to discover significant patterns of teacher classroom behavior. The following three major patterns of classroom behavior were identified:

Pattern X_o - warm, understanding, friendly vs: aloof, egocentric, restricted teacher behavior.

Pattern Y_o - responsible, businesslike, systematic vs: evading, unplanned, slipshod teacher behavior.

Pattern Z_o - stimulating, imaginative vs: dull, routine teacher behavior.

Ryans concluded the effective teachers, or those ranking "high" on the various measurements were: fair, democratic, responsive, understanding, kindly, stimulating, original, alert, attractive, responsible, and confident. Ineffective teachers were partial, autocratic, aloof, harsh, dull, apathetic, evasive, erratic, excitable, and uncertain.

Ryans also found that productive pupil behaviors tend to be assessed lower in classes of teachers under the age of 30. Teachers receiving the highest ratings were in the age groups of 30-39 and 40-49. Teachers with 5-9 years of teaching experience received higher assessments on all three patterns of classroom behavior than those with less than 5 years or more than 10 years experience. This study suggests that teachers between the ages of 30 and 49, with 5 to 9 years of teaching experience, receive higher ratings. Age and years of teaching experience are two of the independent variables selected for analysis by this investigator.

Sprinthall et al. (1966) conducted a study on predicting teacher effectiveness using Harvard-Newton summer intern teachers. This study was based on the general notion that flexibility or cognitive-openness is both a desirable and differentiating quality in

teaching. The dependent variable, in this case, was the teacher competence/effectiveness in terms of a set of behaviors demonstrated in the classroom. In effect, these behaviors were the teacher's ability to think on their feet and to adapt objectives, content, and method while in the process of teaching.

For the purposes of the Sprinthall et al. research, teaching in a operational sense is approached from three perspectives. These perspectives deal with the cognitive flexibility of the intern which is defined as an ability or capacity to think simultaneously and appropriately in a given situation. The three perspectives are: the teacher's personal cognitive characteristics (planning); the teacher's cognitive attitude toward the pupil; and the teacher's cognitive attitude toward the communication of subject matter. Their findings indicate support for the hypothesis that effective teaching and cognitive flexibility are related. Correlations of the personal cognitive characteristics and cognitive attitude toward the pupil represented the major areas of agreement between the observed and predicted ratings.

Ryan and Cooper (1972) also feel that the outstanding characteristic of teachers is flexibility. They

state that every prospective teacher needs to develop a repertoire of teaching skills to use as he sees fit in varying classroom situations. In addition, they report that there are four major categories of attitudes which affect teaching behavior. These include: 1) teacher's attitude toward himself or self understanding, 2) teacher's attitude towards children and his relationship with them, 3) teacher's attitude toward peers and parents, and 4) teacher's attitude toward the subject matter.

A similar result was reported by Jenkins and Bausell (1973). They conducted a survey of 264 public school teachers and administrators in the state of Delaware. A survey instrument was developed for their study based on categories defined in previous research studies. The three categories selected were: product, process, and presage. Respondents rated each of 16 criteria on a 1 to 9 scale according to its importance in determining teacher effectiveness. The criterion receiving the highest rating was the teacher's relationship with his class, with the second highest rating being flexibility. The lowest rating was given to years of teaching experience.

Jenkins and Bausell report that there is substantial

> agreement that both student growth and classroom processes are more important criteria for teacher evaluation than are non-classroom variables such as years of teaching experience and community participation (p. 6).

An atmosphere conducive to learning may be viewed differently by educators than by students. Patton and DeSena (1966) conducted a study to ascertain what the motivating and non-motivating factors of teaching are from the student's viewpoints. Additionally, they wished to determine whether there was agreement between the educational experts and the students on these factors.

Those motivating factors of teachers generally considered important by the experts were: knowledge of subject matter, atmosphere, concern, attitude, intelligence, enthusiasm, resourcefulness, justice, and judgement. The eleventh and twelfth grade students participating in the survey basically agreed with the experts. Patton and DeSena believed such difference as existed among the raters was due mainly to terminology and degree of importance assigned. For example, students used the word "friendliness" where the experts used the word "atmosphere" to describe a motivating factor.

Kenny (1972) asked a group of students ranging from elementary through first year of college to list three

qualities attributed to a bad teacher and three qualities attributed to a good teacher. The secondary level students participating in the survey listed good teacher qualities as: (1) attitude toward students (patient, understanding), (2) ability to stimulate interest, (3) variety in teaching procedure, (4) clarity of explanation, (5) sense of humor, (6) attitude toward subject taught, (7) control, (8) knowledge of subject, (9) attitude toward student opinions, and (10) encouragement of student participation.

Along this same line of thought, Christensen (1960) reported that a teacher whose response toward students was positive and warm produced optimum arousal or motivation, whereas an indifferent or negative response produces much less than optimum motivation.

An investigation of the relationship between psychological health and the attitude and values of teachers related to effective teaching was conducted by Dandes (1966). Psychological health, in this study, was based on the formulations of growth theories that are concerned with health and the open-ended potentialities of a human being. The Personal Orientation Inventory (POI) was administered as a measurement of self actualization. Additionally, other instruments were used to measure the

dimensions of permissiveness, authoritarianism, openness-closedness of belief systems, and liberal-conservatism of educational viewpoints.

Dandes reported that the greater the psychological health, the greater the possession of attitudes and values characteristic of effective teachers. Therefore, a large component of what makes an effective teacher appears to be the degree of psychological health one possesses, or the level of self actualization they have attained.

To date, the research on teacher effectiveness has presented many helpful ideas and suggestions. However, educators cannot reach a consensus of opinion on what elements are involved in determining teaching effectiveness. Various educators have presented their views as to why this difference of opinion occurs.

Biddle and Elena (1964) suggest that confusion and complexity of the problem are two reasons why little is known about the effectiveness of teachers. Sprinthall et al. (1966) feel that there is little conclusive research as to the conceptional issue of what effective teaching is and the empirical problems of how effective teaching can be reliably predicted and measured.

Saadeh (1970) proposes that effectiveness is not determined by one variable alone, that is, the teacher. He feels that focusing on the teacher alone is the reason that studies dealing with teacher's characteristics, personality, and methods have proved negligible. Other variables such as environment, classroom interaction and student motivation may also be involved in teaching effectiveness.

Musella (1970) states that much of the research on measuring teaching effectiveness has proved fruitless in providing guidelines or definitive answers. He states that one can measure many qualities and processes, but suggests it is difficult to determine which teacher behaviors motivate which changes in student behaviors. He suggests that there is a considerable lack of confidence in the ability to measure teaching effectiveness by use of student growth criteria, that the examination of one variable (generally the teacher) is insufficient. He theorizes that the findings based on the teaching process (particularly those based on verbal classroom behavior) are inadequate due to the uncertainty of the validity and reliability of observers. Musella indicated that efforts at improving effectiveness should be directed toward enhancing and extending opportunity for teacher

self improvement. This could be achieved by providing the opportunity and means for teachers to examine their own teaching through the provision of feedback of the teaching situation, such as videotaping the classroom sessions.

Mosher and Purpel (1972) point out that part of the failure of research to produce significant results concerning teacher effectiveness may be attributed to: (1) research which has been conducted and has lacked adequate conceptualization of teacher personality or of its interaction with teaching, (2) lack of validity and reliability in the instrument used to rate teaching, and (3) lack of control of the subject or content of what is being taught or on the kind of pupil being taught.

Mosher and Purpel indicate that the effectiveness of teaching depends on the interaction of a number of diverse factors. Some of these variables may include environment, teacher characteristics or properties, teaching method, and class characteristics. It is further suggested that the optimal mix of these variables is different in different situations.

In summary, research appears to indicate that effective teaching is a product of many factors. It may

be, as Mosher and Purpel suggest, the result of a cluster of what we might now consider unrelated abilities.

Studies Relating to Vocational Technical Teachers

Because of the wide variation in teacher preparation programs and classroom environment in which vocational teachers work, some of the previous research on teacher effectiveness may not relate to the vocational teacher. Previous research summaries have dealt with teachers specifically trained for the act of teaching and who received a diploma attesting to their ability. Similar research efforts concerning vocational teachers and the factors which determine or contribute to specific teacher effectiveness are sparse. Most of such research has dealt with student achievement as the criterion of teacher effectiveness. Because many vocational teachers lack a degree, independent variables used for evaluations of effectiveness have included age, years of industrial experience, grades on competency tests, and college credits earned. A discussion of some of the relevant literature concerning vocational technical teachers follows.

Weaver et al. (n.d.) recognized the dearth of specific guidelines to assist the vocational teacher and pre-

pared a teacher training manuscript. In their manuscript, they described the characteristics of a good shop teacher. Seventeen basic traits were presented as the most important for a vocational teacher to possess. They are: unselfishness, fairness, open-mindedness, patience, maturity, self-control, energy, firmness, forcefulness, dignity, courage, determination, imagination, resourcefulness, sincerity, enthusiasm, and sense of humor. Although Weaver's efforts are commendable, criteria by which these traits are to be evaluated was not discussed, leaving that element to the subjectivity of the individual administrators.

Rumpf (1954) researched the methods used in selecting vocational teachers in Pennsylvania. One aspect of his study compared the years of trade experience to teacher's effectiveness. Effectiveness was determined by the local administrator and was based on the teacher's background characteristics, professional preparation, and performance in the classroom. Rumpf concluded that industrial experience was of negative value after a teacher had obtained twelve years industrial experience before entering the teaching profession. The average age of the vocational teachers in Rumpf's study was 45.51, and the average number of years of industrial experience was 12.0.

Finch's et al. (1969) investigation focused on the trade and industrial teacher education process. They sought to determine the background, personal values, interpersonal values, and attitudes toward teaching of a group of in-service trade and industrial education teachers. They further sought to examine the interrelationships between these characteristics and attitudes toward teaching. The sample consisted of 76 in-service teachers representing four trade and industrial education areas: machine shop, drafting, electronics, and graphic arts. A number of standardized instruments and an information form was used to collect the data. Some of those included were the Minnesota Teacher's Attitude Inventory, Study of Values, Survey of Interpersonal Values, and the Vocational Teachers' Attitude Scale.

Analyzing the biographical data related to teaching, Finch et al. produced the following means for the total group. The average age was 42.8, average years of occupational experience was 14.1, and the average years of teaching experience was 7.4. The results of the Finch et al. study showed that the teachers had "considerably more occupational experience and less professional preparation than would be typically expected of an academic teacher (p. 63)", thus indicating a definite difference in preparation for the profession.

Other findings in the Finch study showed that those trade and industry teachers who had accumulated the most general college credits exhibited a more positive attitude toward teaching. Further indication of the group's association with industry resulted from the Values tests. Teachers' values appear for the most part, to "identify more with the tradesman or technician rather than the teacher" (p. 63).

Finch et al. further stated that the results of this study

> strongly indicate that the trade and industrial teacher is an atypical individual. Certain of his personal and interpersonal values are not representative of the general population (p. 63).

Brown (1971) investigated the relationship between student and supervisor evaluations of the effectiveness of general business teachers. A secondary purpose of this study was to identify qualities of effective business teachers. A performance specimen checklist and a rating scale was used to identify qualities of effective teachers. Among the major findings stemming from this study were: (1) there was no significant relationship between years of teaching experience and effective teaching as evaluated by students, (2) there was a significant relationship between teaching experience and

scores assigned by the business teachers' immediate supervisors, and (3) there was no significant relationship between years of outside work experience and teacher effectiveness as evaluated by both students and supervisors. Elaborating on the second finding, Brown indicated that the supervisors rated teachers with fewer years of teaching (0-6 years) as more effective. It is important to point out that the findings of these studies do not indicate that years of industrial experience are necessarily a good measure of teaching effectiveness in terms of student growth and achievement. It appears more likely that the quality of experience gained during the industrial experience is the key factor.

Garner et al. (1974) conducted an investigation of several salient characteristics of the teacher preparation programs in the Department of Trade and Industrial Education at the Pennsylvania State University. This study was concerned with current and former vocational students enrolled at the university, in both the baccalaureate and certificate programs.

The Garner study focused on the two routes by which one may become a vocational teacher. One route is the traditional baccalaureate degree, and the

other route is a certification program. The certification program requires experience in an occupational skill along with the passing of a competency exam in order to matriculate in the program.

Garner et al. were interested in selected personal, professional, and academic characteristics of the students presently enrolled and the graduates from the two groups. More specifically, they investigated background and achievement variables and collected descriptive information on the 243 students involved in the study.

Of interest to the present study were the following conclusions:

> 1. As students progressed up to five years of occupational experience, the all university GPA tended to be greater. As the number of years of occupational experience went beyond five years, the academic performances did not increase accordingly (p. 102).
>
> 2. Performance on the trade competency exam exhibited no relationship to academic performances (p. 102).
>
> 3. The certificate students were found to be older and to take more years to complete their program of study than the baccalaureate students. However, age was not related to the academic performances for the certificate students, whereas the older baccalaureate students tended to have a higher academic GPA (p. 105).

Swartz et al. (1975) conducted a survey to determine the effects of trade experience, teaching experience, and formal professional education on the classroom teaching of vocational teachers. The participating teachers were evaluated by the following five sources: (1) administrators, (2) supervisors, (3) teacher-peer, (4) self-rating, and (5) student rating.

A total of 72 teachers were selected using a stratified random sampling technique. They were evaluated by the above sources using four different instruments developed for the survey. The results of the administrator's survey indicated that trade experience was highly significant while the supervisors indicated that the interaction effects of trade experience and professional education was highly significant. Student and teacher-peer groups data indicated that none of the variables were significantly related to successful teaching.

The Swartz et al. study shows that previous industrial experience and former professional education do not contribute to teaching effectiveness from the view of the students, teacher-peers, and the combined rating groups. Swartz et al. suggest that this

finding be considered when establishing certification requirements.

Impellitteri (Baran and Gilli, 1975) collected data concerning vocational technical teachers who had taken the competency test during the period from 1944 to 1965. His findings show that the average IQ as measured by the Otis Self Administering Test of Mental Ability was 107 for this group of participants. Additional findings were:

1. The average age of the participants at the time they took the competency test was 37 years and the average number of years of industrial experience was 12.6 years.

2. The number of years of industrial experience possessed by individual participants was not indicative of his success on either performance or written sections of the test.

3. During the 20 year period involved in this survey, 30 or more competency exams were administered in only four occupations: 151 in machine shop, 79 in carpentry; 90 in auto mechanics; and 36 in mechanical drafting. Other occupations averaged as few as one every 3 years.

4. The mechanical draftsmen were younger (34.9), had fewer years of industrial experience (8.9), and measured higher in intelligence tests (112.0) than the other participants.

Impellitteri felt that major problems existed in attempting to accurately assess the competency of vocational teachers, especially with regard to the

relevance of previous work experience to future teacher assignments.

Kapes and Pawlowski (1976) conducted a study involving all the eleventh and twelfth grade teachers and their students from vocational schools, namely: Hazleton, Jefferson-DuBois, and Altoona, Pennsylvania. The sample consisted of 31 teachers and 389 students for the senior group and 31 teachers and 487 students represented the junior group. From the data collected from these respondents, the authors explored how the effects of certain teacher background characteristics relate to student shop achievement.

The three teacher background characteristics selected for this inquiry were: (1) educational background, (2) occupational experience, and (3) teaching experience. The criterion of student performance was the Ohio Trade and Industrial Education Achievement Test (OTAT). In addition, the students were administered the Short Form Test of Academic Aptitude to measure their academic ability.

The results of the Kapes and Pawlowski study indicated that many years of teacher industrial experience does not result in greater student achievement, and teacher credits earned were significantly related

to student achievement. The negative relationship between trade experience and shop achievement suggests that it is reasonable to recruit younger men and women with less trade experience as vocational technical teachers. However, it must be noted that sample limitations and the use of intact groups limits the inferences these studies can make to only the population used.

Criterion Related Research

Teacher Concern

One objective of effective teaching is to motivate a response within the student consistent with the planned outcomes. In order to achieve this goal, it is necessary to understand something about the way teaching and teachers are perceived by students, and concomitantly, how these same students score on performance or written tests.

It is understood that students assess or rate their teachers. This may be a well organized endeavor or simply a spontaneous response. For the purposes of this study, an instrument was required that would prove reliable in areas that students are competent to judge. Ray's (1960) Student's Estimate of Teacher Concern (Form B) was selected to measure the

student's perception of their teacher's concern. In this case, perception is defined as the way the student perceives the communication of the teacher.

Another definition of perception is an awareness

> that emerges as a result of a most complicated weighing process an individual goes through as his mind takes into account a whole host of factors or cues (Toch and Smith, 1968, p. 5).

Our reactions to everyday situations are colored by our perceptions of them. Each individual perceives the same situation somewhat differently than the others in the group, depending upon how he weighs and integrates all the elements involved in each experience. Students in a classroom, therefore, perceive the interaction between teacher and student based on their accumulated experiences. The teacher's classroom behavior, and how it is perceived, may contribute significantly to the classroom environment and atmosphere enhancing the student's opportunity for growth and development academically and socially.

There are many behaviors that can be compiled to describe an accepting, understanding, concerned type of teacher behavior. Gage (1960), Ryans (1960) and Barr (1961) have listed some of them. Occupying a position of prominence on this list are warmth, concern,

indirectness, friendliness, and fairness. Some researchers, including this investigator, feel that if a student perceives that the teacher demonstrates concern for the students individually and as a group, the teacher is more effective. Ray (1960), investigated how students perceive the effectiveness of teachers. Additionally, she asked whether student ratings of teachers can be correlated with other types of ratings to form a reliable set of criteria for measuring teaching effectiveness. Ray revised and refined the Student Estimate of Teacher Concern (SETC) questionnaire which was developed by Nygren in 1955. The SETC is a measure of student's perception of their teacher's concern for them. Concern, in this test, is measured by four dimensions, namely: recognition, understanding, communication of a desire to help, and help offered.

The SETC test has been used in a number of studies to measure the effectiveness of a teacher (Perry, 1967; Murray, 1968; Wilhelm, 1968; and Parkhurst, 1974). A summary of their findings follows.

Perry (1967) explored the relationship between student teachers' social class prejudices and their rejection and acceptance of pupils of lower socio-

economic levels as measured by the pupils' own perceptions of the teacher's concern for them.

Perry used two instruments to assess social class and acceptance. They were Lehman's Attitude Inventory and the Index of Social Status. Social Mobility was established by projecting the social class status of the student teacher as a teacher in the secondary schools, and comparing this score with the father's occupation and educational level.

Perry's findings showed that student teachers with high socioeconomic status had more positive attitudes toward people from various social settings than student teachers with a lower socioeconomic status index, and that the difference in socioeconomic status of pupils was not related to the student teacher's ability to communicate concern for her pupils. Additionally, Perry found that student teacher attitudes toward people from families unlike their own were not related to their ability to communicate concern for pupils.

Perry's findings would indicate that teachers' communication of concern for pupils is not based on the socioeconomic status of the student. There is some indication that teachers with a high socioeconomic

status exhibit more tolerance toward people of varying social settings.

Wilhelm (1968) explored the interaction of teacher personality and student personality in relation to teacher effectiveness. Maslow's self-actualization theory was the basis of this study. A self-actualized individual was defined as one who exhibits a high level of maturity, health, and self fulfillment and was measured by Shostrom's Personal Orientation Inventory (POI). The POI was administered to both teachers and students. The SETC was used to measure student's perceptions of teaching effectiveness.

The findings showed that self-actualizing teachers will be perceived as more concerned by their students than will be non-self-actualizing teachers. Interestingly, it was found that non-self-actualizing teachers are viewed as more concerned by less self-actualized students.

Wilhelm's conclusions state that self-actualizing teachers are more effective and concerned with all their students than the non-self-actualizing teachers, indicating that self-actualized individuals needs are more adequately met, thus freeing them to demonstrate more concern for others.

Murray (1968) investigated the relationships between teacher's values and level of self-actualization and student's perception of teacher behavior. Her study supported the hypothesis that self-actualizing teachers are perceived by their students as more concerned than non-self-actualizing teachers. Therefore, teachers with high social values are perceived as being more concerned for others. An interesting sidelight of this study indicated that neither age of the teacher, years of teaching experience, or grade levels being taught, were relevant factors affecting the other variables of the study (i.e., self-actualization, social values, and SETC).

Parkhurst (1974) investigated communication in the classroom through the verbal and non-verbal elements of teacher and pupil behavior. This study was concerned with the influence of pupils' perceptions of their student teacher and their ability to distinguish accurately between positive and negative gestures. A primary hypothesis of this study was that:

> pupils who perceived their student teacher as demonstrating high concern or employing indirect verbal behavior would perceive the gestures they enacted as primarily positive (p. 58).

Conversely, if students perceived low concern was demonstrated, pupils would perceive the gestures as primarily negative. Parkhurst used the SETC and the Farris Pupil Feedback Questionnaire to establish the pupils' perceptions of their student teacher. She also developed and administered the Parkhurst Perception of Gesture Test (PPGT) to analyze pupils' perception of their student teacher's non-verbal behavior.

Parkhurst's analysis indicated that pupils mean scores on their perception of positive gestures were significantly different from their perception of negative gestures and that pupils could distinguish between positive and negative gestures. Parkhurst stated:

> the data from this study indicates that pupil's perceptions of their student teacher's concern and their teacher's verbal behavior do not influence their perceptions of gestures (p. 54).

She further pointed out that pupils are capable of assessing a student teacher's non-verbal behavior in the classroom regardless of their personal feelings. This study would indicate that student judgments are reliable.

Trade Competency

Several studies have been conducted investigating the role of achievement testing in education. A dis-

cussion of studies pertinent to this investigation follows.

Barr (1961) lists three commonly employed criteria in evaluating teacher effectiveness. One of the three is a measure of pupil growth and achievement which is usually expressed as pupil gain scores based on achievement tests. These tests are administered prior to instruction and again after instruction has been completed. The change in scores is probably due to the teacher factor as manifested in teaching techniques and activities employed in the process of teaching the unit.

Boyd and Shimberg (1971) point out that written tests of trade knowledge are not very dependable and without some measure of actual performance "it is unlikely that we can make an accurate assessment of an individual's trade competency" (p. 2). They submit that the process by which the final product is attained involves activities other than cognitive abilities and therefore gives a more concise evaluation of the student's achievement. Based on this concept, the authors have developed a handbook to illustrate the various steps one should follow in developing performance tests for trade evaluation.

Comer (1971) suggests that competency tests should be designed that minimized verbal skills. These tests would focus on performance testing using "actual specimen components from the trade as test items" (p. 50).

Comer's investigation centered on automotive skills. The procedure used involved a number of parts removed from vehicles with standard defects. The participants were allowed to examine these parts and were asked to: (1) identify the part, (2) indicate its condition, (3) decide why it failed, and (4) decide whether to reuse it.

The researcher observed that "emotional tension of subjects rose when written materials were handed out and fell when the actual hardware of the subject being discussed was distributed" (p. 53). He felt that tension inhibits the learning process, therefore, by using performance tests to measure achievement, the learning process may be accelerated.

Kapes and Long (1971) investigated the relationship between earned end of year shop grades of students in trade areas and their scores obtained from the Ohio Trade and Industrial Education Achievement Tests (OTAT). The sample consisted of junior and senior vocational shop students enrolled at Altoona Area Vocational

Technical School during 1968-69 and 1969-70. Seven shop areas were represented in the 1968-69 sample and 9 shop areas were included in the 1969-70 sample.

The OTAT battery variables included the California Survey of Mental Maturity (CSMM) scores, Stanford Arithmetic scores, and the Trade and Industrial Achievement Test total score. The dependent variable was the shop grade.

Kapes and Long suggested the following conclusions may be drawn from this study:

1. That shop grades contain a large component which is not related to ability or knowledge of the subject matter. Apparently, shop instructors consider much more than acquisition of factual knowledge of the trade when assigning grades.

2. The T & I Achievement Test may validly measure those aspects of achievement which can be easily reflected in a paper and pencil knowledge test, but measures only a small portion of that upon which shop instructors base grades.

3. The T & I Achievement Test may be useful as an evaluation tool when that evaluation is concerned with knowledge of course content. Performance tests may be more appropriate measures when other aspects of success are to be evaluated (p. 12).

The authors indicate that the OTAT predicts grades one year later as well as do past shop grades and suggest that vocational personnel consider its usefulness

in identifying strengths and weaknesses in the instructional programs, conducting in-service activities for teachers, and in planning certain remedial programs for students.

Kapes and O'Reilly (1973) designed a comprehensive model to measure success in vocational education. Variables representing the aptitude, attitude, and socioeconomic domains were used to test the validity of the model. This model used 3 independent variables (GPA, shop grade, and OTAT scores) to represent success in school. The GPA score was adjusted to include the vocational shop grades as 50 percent of the students' total educational success. Success in life was depicted as personal, occupational, educational, financial, social, and others. The independent variables selected, ranged from a specific measure of success (OTAT) to a general measure of success (GPA). Portions of the GATB were incorporated as ability measures along with father's educational level and occupational level to obtain data concerning socioeconomic background.

The findings indicated that the GPA (11th grade) is the most predictable variable when compared with the student characteristic variables (GATB, vocational maturity, etc.). Shop Grade (11th grade) was the second

most predictable variable of success followed by GPA (10th grade), Shop Grade (10th grade), and finally OTAT.

Kapes and O'Reilly concluded that for most purposes, the GPA is probably the "best in-school measure of over-all success in the total vocational program" (p. 42). Depending on the purpose, however, OTAT or Shop Grade may be a better measure of success in the vocational classroom.

This investigator selected the Pennsylvania Competency Examination for Quantity Foods as a measure of the achievement level of the advanced students in the food service classes. The Competency Examination was selected because it provided an external, impartial instrument by which achievement could be measured.

The Competency Test contained 239 multiple choice items that were designed to measure knowledge in all areas of the food service curriculum. Content validity of the exam was established through a pre-testing and content analysis process using twenty-four individuals experienced in the teaching and industrial aspects of food service industries. A reliability coefficient of .89 was reported for this exam by means of the Kuder-Richardson 20 formula.

As has been noted earlier, a trade competency test is designed to measure the skills and knowledge of those individuals taking the test. It generally consists of a written section and a performance section. The above studies indicate that competency tests have been used successfully to measure an individual's competency in their trade. Therefore, the same type of test was used to measure student achievement (trade competency) in this study.

Summary

The doubts, frustrations, and complexities involved in evaluating or measuring teacher effectiveness are abundant.

Educators directly or indirectly involved in research tend to group themselves into various camps. Some feel the only way to measure teacher effectiveness is through the scholastic growth and achievement of their students. Some agree with this measure but feel the time for measuring this achievement is somewhere in the future. Others, such as Ray (1960) and Parkhurst (1974) feel that teacher effectiveness must be measured through affective terms, including interpersonal interaction between students and teachers,

and they have been instrumental in developing reliable means of measuring this interaction. Still others, such as Gage (1960) feel that the sources of effectiveness must be sought elsewhere than in the measures of the teacher's understanding of pupils.

Several studies have been conducted concerning vocational teachers and students. The results of the studies reviewed here appear to agree that industrial experience does not enhance the growth of student achievement and college credits earned by the teacher are more effective in producing student growth.

Vocational educators are concerned with the development of valid means of measuring the combined competencies of knowledges and skills. They have approached this task by developing Competency tests which have both a written section to measure what the individuals know about the subject and a performance section to measure how well he or she can do the job. This dual approach appears to yield a more realistic appraisal of an individual's trade competency.

Although educators are becoming more concerned with being accountable for what is evolving in our educational system, the idea of measuring teacher effectiveness has not been welcomed by all members of the profession. Some

educators are uncommitted while others are violently opposed to the concept, fearing the methods used in obtaining the data. These differences among researchers and educators, generates the challenge for additional research in the hope that teaching effectiveness can be better defined and measured.

III

PROCEDURE

Introduction

This chapter presents information concerning (1) the population and sample, (2) collection of data, (3) the independent and dependent variables, and (4) the methods used to analyze the data.

Population and Sample

The population to which the results in this study may be generalized, consists of vocational food service teachers in Pennsylvania. The sample could be described as typical of all vocational food service teachers and to that extent, representative of the total population of vocational food service teachers at least in Pennsylvania. Although the sample used was not randomly selected and cannot be statistically representative of all teachers, it is felt that the sample selected for study is as representative as any sample of its size which could be selected.

Thirty-one vocational technical schools in 14 counties of eastern Pennsylvania participated in this study. These schools are served by the Eastern Regional Vocational Field Service staff of the Pennsylvania Department

of Education located in Allentown, Pennsylvania. All of the schools are organized on the three year high school plan with the exception of one school operating on a four year plan. All but two of the schools operate a half day program which splits the students' time between their home school and their AVTS. One of the remaining two schools operates on a two week rotation of students with the home school. The other school is a comprehensive vocational technical school providing all the academic courses as well as the vocational courses needed for graduation. Among the participating schools, there is a wide range of student enrollment, vocational course offerings, and school size. A list of all the schools involved in this study is included in Appendix C.

This study was divided into two phases resulting in an original sample and a sub-sample. The first phase of the study included 48 food service teachers and 495 sophomore, junior, and senior students. The second phase of the study consisted of 17 of the original teacher sample and 116 advanced junior and senior students.

Essential Data

Collection of Data

A survey consisting of teacher demographic informa-

tion and students' estimate of teacher concern was conducted in the spring of 1975 during a visitation to the school by the investigator. The sample consisted of 48 food service teachers who participated in a questionnaire and personal interview. In this study, the information sought from the sample population dealt with the teacher's age, sex, industrial experience, teaching experience, level of education, and occupational specialization. Concomitantly, 495 students responded to a questionnaire aimed at assessing the students' estimate of teacher concern regarding the 48 teachers. Ray's (1959) Student's Estimate of Teacher Concern questionnaire was selected to assess the degree to which students actually perceive this behavior in their teachers. The number of students responding to the SETC questionnaire for each teacher interviewed in this study is listed in Appendix F.

The second phase of collecting data was conducted during the spring of 1976. A sub-sample taken from the original sample (N=48) consisted of 17 teachers and 116 of their advanced students. These students took the Pennsylvania Trade Competency Test which measured the cognitive outcomes of the actual teaching. The test was given by a substitute teacher under carefully controlled conditions (i. e., counting pages of the test after they were returned) and care was taken to protect the confi-

dentiality of the test. Participants maintained anonymity by indicating simply "male" or "female" and "junior" or "senior" on the answer sheet. A code number was given each teacher so information obtained in 1975 could be matched with that obtained in 1976.

Independent Variables

A review of the literature suggested certain teacher characteristics that had been used in previous studies. It was felt that those characteristics which could be dealt with most objectively and related to vocational teachers more closely were: age, sex, industrial experience, teaching experience, level of education, and occupational specialization. Additionally, teacher's perception of concern lent itself to a statistical analysis and was considered as a variable. Although a review of the literature revealed nonsignificant findings regarding some of the variables selected for this study, little research has been conducted concerning food service teachers. The wide range of food service teacher backgrounds suggest the same findings may not be applicable to this group.

All of the following information concerning the seven variables was obtained through a teacher questionnaire and personal interview which were designed and administered by

the investigator. The purpose of this questionnaire was to obtain pertinent demographic information concerning the teachers. In addition to gathering information concerning the seven independent variables chosen for this study, an attempt was made to uncover the degree of uniformity among the food service programs in eastern Pennsylvania. This also would establish a profile of these programs. The questionnaire is included in Appendix A.

The following is a description of the variables selected along with a rationale describing why each was chosen:

(a) Age - The age of a teacher may contribute to the learning outcome of the student. In educational circles, we frequently relate older and more experienced teachers with effective teaching. This study is aimed at providing data concerning age specifically related to food service teachers. The age of the teacher is recorded in 5 year intervals beginning at age 20-25. The 40-45 year category was selected as the cut-off age because of the reluctance of teachers to supply information that could have the potential for evaluation if the report were read by their immediate supervisors or

administrators. There was a minority of teachers over the age of 45 (personal observation). In computing the teacher's age for this study, the midpoint of the 5 year interval was used. For example, all those teachers who listed 20-25 were assigned age 22.5 in the computer program.

(b) Sex - It was believed that the sex of the individual food service teacher may play a part in the relationship that is developed between the teacher and the individual student. This relationship may contribute to the learning environment found within the classroom. The variable sex is included in this study to determine the relationship between sex and teacher effectiveness. In the computer analysis, male = 0 and female = 1. Therefore, if later analysis indicate .49 or below, it means there were more men than women in the sample.

(c) Industrial experience - Industrial experience was defined as the number of years of full time work experience or its equivalent related to the area of specialization possessed

by teachers in this study. In some programs, industrial experience is a prerequisite for entry into the vocational teaching field. This characteristic was selected to determine if industrial experience results in more effective teaching. The years of industrial experience were rounded off to whole numbers and reported in number of years.

(d) Teaching experience - Teaching experience was defined as the number of years of teaching at the secondary school level and is measured in whole numbers. Teaching experience was selected as a variable in order to discover if there was a relationship between number of years of teaching and teaching effectiveness. It is assumed that experience improves the methods and techniques involved in teaching which implies that the more years one has taught the more effective he or she becomes.

(e) Level of education - Education was defined as the amount of formal education an individual possessed at the time of this survey. Teachers involved in this study

had a wide range in educational background. Some of the teachers graduated from a four year teachers college. Others have entered the profession with a high school education. Still other teachers have four year college degrees,(but not in the field of their employment),associate degrees from the Culinary Institute of America, or two year community college programs. Non-credited teachers, most of whom lack a four year college education, are required to take courses in teaching techniques and general education in order to maintain their employment. It was hypothesized by this investigator that the students of those teachers who are currently involved in teaching vocational food service courses and who have obtained a four year degree, will score higher on both the achievement and the affective test. It was further hypothesized that teachers having associate degrees will score higher than those teachers with lesser education even though there is extensive industrial experience. For the

purposes of this study, level of education was divided into the following categories: (1) less than instructional I teaching certificate, (2) instructional I teaching certificate (18 hours of college credits), (3) less than instructional II teaching certificate, (4) instructional II teaching certificate (60 hours of college credit), (5) associate degree plus trade and industry courses, (6) bachelor degree, and (7) graduate study comparable to that required for a master's degree, for example, dietitian. However, the student groups were not equated in this study, thereby limiting the significance of the findings.

(f) Teacher perception of concern - Teachers who felt concern for the individual was the most important qualification needed to become a successful teacher exemplify teacher perception of concern. This variable was chosen after the data from the teacher's questionnaire had been compiled. The rationale for selecting this variable at this time was to extract as much infor-

mation as possible from the data. This information on teacher perception was obtained by a rating scale in which the teacher was asked to rank, in order, those qualifications needed by a successful teacher. Those teachers who ranked concern as number one on the rating scale were recorded as having perception of concern. In the analysis of data, these teachers received a 1, while all other teachers were given a 0. It was a hypothesis of this investigator that in order to be effective in producing pre-determined learning outcomes, one should believe in the importance of creating an atmosphere of acceptance, understanding, offering, and giving help to individual students.

(g) Occupational specialization - The degree of occupational specialization possessed by the teacher is greatly affected by the type and depth of the experience the individual has accrued in industry. It was hypothesized that the teachers tend to em-

phasize those cognitive areas in which they feel most confident, and this emphasis reflects in the achievement scores of the students. The results of this study should indicate the type of teacher work experience needed by teachers to develop student competencies expected by the school and industrial community. The investigator assumed that work experience is on a developmental continum; therefore each individual teacher was placed in the category which represents the highest degree of specialization they have obtained. The following categories were used:

1. unrelated	previous positions were occupations other than food service.
2. semi-skilled	focused primarily on a limited phase of the food service industry, such as short order cook.
3. skilled	well trained in a broad area of the industry, for example: head cook, chef, or baker.
4. managerial	owner or executive chef.
5. technically trained	associate degree with related experience.
6. professional	bachelor degree plus related experience.

Dependent Variables

Two separate dependent or criterion variables were administered to the student sample utilized in this study. They are:

(a) Student Estimate of Teacher Concern (SETC) - This test was selected to assess the students' perception of teacher concern. The measure of teacher concern is based on three major components: recognition, understanding, and help. It has been defined as "a condition in which a teacher had communicated to a student regard for his well being" (Ray, 1959, p. 18).

Ray's study (1960) involved four hundred sixty-eight seventh and eighth grade girls who were taking homemaking from teachers. The split half reliability coefficient for the total SETC on this group was .95. In order to establish validity for the test, students were asked to name and rank 3 teachers in each of the four categories comprising teacher concern, specifically: recognition, understanding, communication of a desire to help, and help offered. The mean scores of this ranking process were correlated with mean SETC scores received by the

teacher and were found to be highly consistent resulting in a correlation of .95.

To determine whether the accuracy of the teacher's perception of her concern for her students might contribute to the validation of the SETC, the teacher's mean scores of their own estimates of awareness, understanding, communication of a desire to help, and help given were analyzed. Results of this data indicated that both teachers and students were able to sense fairly accurately the quality of interaction between teachers and students.

In an attempt to determine if student ratings of teachers can be correlated with other types of ratings to form a reliable set of criteria to measure teaching effectiveness, Ray administered the Minnesota Teacher Attitude Inventory (MTAI). This test has been used extensively as a predictor of teaching effectiveness and deals with the teacher's concept of rapport between teachers and students. When this test was given to the teachers

and their scores correlated with SETC scores, the correlations were not statistically significant. However, evidence did indicate that both the MTAI and the SETC test identified the nine teachers involved in Ray's study as above average.

Ray further investigated the use of a "professional distance" concept to analyze a relationship between student ratings of teachers and other types of ratings. In this measure, each teacher was asked to submit the names of three co-workers whom she felt were capable of judging her effectiveness as a teacher. Correlation of the mean scores obtained from this measure with the SETC scores was significant at the .10 level.

In an effort to test her premise that the MTAI sometimes failed to take into account the reality of the teaching situation and that rankings by professional associates are largely based on reputation and do not take into account

the teacher's intentions, Ray combined the scores of the two variables. The hypothesis was that "the two variables could provide a more accurate index of the teacher's actual concern for students than either score alone" (p. 183). The rho value (.84) was significant at the .01 level.

Although this study was concerned with a particular population, Ray states that the

> clearly defined relationship of validating indexes to the SETC indicated that the factors of recognition, understanding, and help could be interpreted for any age or educational level (p. 184).

The short form of the SETC, developed by Ray from her 1959 test, was used in this study. This test, form B, consists of 30 items and has a split-half reliability of .95 (Ray, personal communication, 1975). Each item receives a value of one, thus making the range of points from 0-30. This short version of the test has randomly selected items covering the four dimensions included in the

original 93 item SETC test, and thus establishes validity.[42] The four dimensions of the SETC are listed by Ray (1959) as:

Recognition	an individual is identified as a particular person different from others.
Understanding	knowledge of the causal factors related to the behavior of an individual.
Help I	desire for some kind of action which will be for the well-being of the individual.
Help II	some kind of action taken which will be for the well-being of the individual (p. 18 and 22).

(b) Competency Exam - The competency exam selected for this study was the Pennsylvania Competency Examination for Quantity Foods. It was selected to measure the achievement level of the advanced students enrolled in the vocational food service classes. Only the written technological section of the examination was administered. This test contained 239 multiple choice items which were designed to measure knowledge in the areas of cost control, menu planning, safety and cleanliness, waitressing

and customer service, food service occupations, nutrition, food purchasing, and food receiving and storage.

Content validity of the exam was established through "pre-testing and content analysis of an experimental form of the instrument with a sample of twenty-four individuals experienced in quantity food service occupations" (Manual, Quantity Foods Competency Exam). A reliability coefficient of .89 was established on the experimental form of the written section of the examination by means of the Kuder Richardson 20 formula.

A reliability study of the competency test was conducted using the 119 test scores of the individuals taking the test in the spring of 1976. (Only 116 of the test scores were used in the statistical analysis for this study. Three tests were not used because of very low scores attained on the test). The Kuder Richardson 20 formula yielded a reliability coefficient of .913. The standard deviation was

23.29 and standard error of measurement was 6.89. The grand mean was 104.18 and the test range was 126. The mean difficulty of items on the test was .436 indicating that the test is difficult. Further information, such as means, standard deviation, standard error and range, concerning each of the independent samples are found in Appendix E.

For the purposes of this study, the exam was administered to 116 advanced students. These students were drawn from the vocational schools having a single teacher responsible for the quantity foods program. If more than one teacher was responsible for the students' growth and development, it would be difficult to assign a score to an individual teacher.

Of the total number of schools participating in this study (31), 21 had a single teacher responsible for the theory and skill development of the students. Of this number, 17 teachers and their respective schools participated in this phase

of the study. Two schools refused to participate because of the student's rights and responsibilities act. One school operated on a plan whereby sophomores attend the vocational school for one semester, and juniors and seniors attend the alternate semester. The spring semester was assigned sophomores, thus no advanced students were available.

Although permission was granted by the director, the teacher of the final non-participating program refused admittance to the test administrator on the day of the scheduled test. Attempts to reschedule the test were unsuccessful.

A substitute teacher, certified in secondary education, was responsible for visiting the 17 schools and administering the Competency Exam. This test required approximately 1½ hours for the students to complete the 239 questions. The test was given to geographically related schools on the same day, if their schedules permitted. A small number of

schools required a second visitation in order to obtain a more complete set of scores.

The tests used as dependent variables were administered one year apart. The SETC was given in the spring of 1975 at the same time the teacher questionnaire was administered. The Competency Examination was given in the spring of 1976. One teacher did not return to teaching in the fall of 1975, therefore the SETC was re-administered at that time.

The student's score on each measure was matched with his or her corresponding teacher. The tests were scored and the total number averaged. The scores for each teacher on each of the criterion variables are reported as means in Appendix D.

Analysis

The Pearson Product Moment Correlation (PPMC) and Multiple Regression Analysis (MRA) were the primary statistical methodologies used. The level of significance selected for this study was .05. Accepting .05 level of

significance guards against the probability of a type I error (rejecting a true hypothesis) occuring more than 5 times in a hundred.

Question one was concerned with a descriptive profile analysis of the current food service programs. Data were obtained concerning the curriculum, student population, and teacher characteristics. The results of the questionnaire were analyzed and a full description is presented in Chapter IV.

Data concerning the independent and dependent variables were recorded and cards were key punched and verified. The sums, means, correlations, and multiple regression analysis were computed via the statistical package program for the BMD Biomedical Computer Programs available at the Lehigh University Computer Center. Specific programs used in this study included: 1) Simple Data Description (BMD01D), 2) Correlation with Transgeneration (BMD02D), and 3) Stepwise Regression (BMD02R).

In order to provide meaningful answers to the questions listed in chapter one, statement of the problem, questions number 2, 3, and 4 were answered using the Pearson Product Moment Correlation (PPMC) while question number five utilized the Multiple Regression Analysis (MRA).

IV

FINDINGS

Introduction

This chapter presents a comprehensive analysis of the questions posed in the statement of the problem. These data are presented both descriptively to provide a profile of the existing food service programs in eastern Pennsylvania and statistically to provide supportive data concerned with the sample.

Question #1

What are the general characteristics of the food service programs from which the sample was drawn?

As stated earlier, one of the purposes for conducting this survey was to provide a profile of the current food service programs in eastern Pennsylvania. In order to gather pertinent data, a questionnaire was developed to obtain information concerning the background of the teachers, educational environment of the class, placement of students, and facilities available.

The data are presented in three categories: (1) relating to teachers, (2) relating to classroom activities, subject matter, and students, and (3) relating to facilities and scheduling. Each of these categories

may be further divided to focus on particular points.

The sample completing the questionnaire consisted of 48 teachers in 31 vocational schools. The teachers were asked to answer 56 questions concerning themselves as individuals, their students, curriculum, and facilities. Some of this data obtained from the questionnaire is presented in Tables 1, 2, and 3. In an effort to consolidate the information, some questions were combined. In some cases, the data received on the questionnaire indicated the question was misinterpreted by the teachers, for example, the time devoted to various activities during any given week exceeded the 15 hours available for instruction. In reporting this data, all averages are arithmetic means rounded to whole numbers.

In Table 1, the age, industrial experience, and teaching experience variables are continuous variables listed in years. Therefore, the number in the table represents the average age, industrial experience and teaching experience for both the sample and the sub-sample. Sex is a dichotomous variable (represented by male = 0 and female = 1) thus indicating that 27 percent of the total population were women while 47 percent of the sub-sample were women. Teacher perception of concern is also a dichotomous variable. Those tea-

Table 1. Comparative Teacher Data of the Sample and Sub-sample.

Variable	Sample		Sub-sample	
	$\bar{X}$	SD	$\bar{X}$	SD
	(N=48)		(N=17)	
Age	38.23	8.87	39.26	9.00
Industrial Experience	16.02	10.99	14.76	11.15
Teaching Experience	5.83	4.88	5.35	3.04
*Sex	.27	.45	.47	.51
**Teacher Perception of Concern	.27	.45	.29	.47

*Sex is a dichotomous variable. Males are represented by 0 and females by 1.
**Teacher Perception of Concern is also a dichotomous variable. Concern is represented by 1 and lack of concern is indicated by 0.

Table 2. Means and Standard Deviations for the Sample and Sub-sample of Students Participating in the SETC and Achievement Tests.

Variable	$\bar{X}$	SD
SETC (N = 495)	22.08	4.80
Achievement (N = 116)	106.9	11.37

chers indicating concern for students as the most important qualification for a successful teacher, were identified with a 1 while all others were identified by 0. Thus, 27 percent of the total sample and 29 percent of the sub-sample felt concern for the student was the most important qualification of teacher success.

Table 2 provides the means and standard deviation of the original student sample and the student sub-sample for the SETC and Competency Exam scores. Table 3 indicates the frequency of the various levels of education (1-6) and occupational specialization (1-7) of the teachers at the time of the survey.

Category I: Teachers

This group of questions dealt with the backgrounds of the teachers including: jobs held prior to becoming a teacher; duties performed; most liked and disliked aspects of the jobs; types of food service businesses in which the teachers were employed; and how many years the teacher was employed in industry. The results of the investigation showed that the backgrounds of the teachers were varied. Table 4 lists the jobs held most frequently by the teachers before becoming a teacher.

Table 3. Frequency Table for the Seven Categories of Teacher Education and Occupational Specialization of the Sample and Sub-sample.

Category	Sample	Sub-sample
	(N=48)	(N=17)
Level of Education		
1. Less than Instructional I Teaching Certificate	0	0
2. Instructional I Teaching Certificate	5	3
3. Less than Instructional II Teaching Certificate	12	2
4. Instructional II Teaching Certificate	9	2
5. Associate degree	5	3
6. Bachelor degree	5	2
7. Graduate Study Comparable to that required for a Master's	12	5
Occupational Specialization		
1. Unrelated	1	0
2. Semi-skilled	1	1
3. Skilled	10	1
4. Managerial	11	5
5. Technically Trained	9	3
6. Professional	16	7

Table 4. Prior Jobs Held Most Frequently by Teachers

Job	f
Cook	10
Chef	9
Manager/Owner	8
Baker	7
Food service manager	4
Dietitian	4
Executive chef	2
Other	5

Most of the jobs were related to foods either in a management position or preparation and service. However, some of the jobs held before becoming a teacher included night auditor, clerk in a grocery store, hat maker, public relations department member of a business, and math teacher.

Duties performed while engaged in these jobs included some supervisory responsibilities. Some of the chef/cook positions assumed responsibilities for supervising other employees.

Table 5 lists some of the elements of the job that the teachers enjoyed most when they were working in industry.

Table 5. What Teachers Liked Most About Previous Jobs.

Liked Most	f
Working with people	17
Challenges and organization	5
Financial reward	5
Satisfying customers	4
Working with young people	3
Others	14

Some of the less frequently mentioned, but interesting responses included creativity, problem solving, activity, excitement, responsibility, and steady employment.

The following table shows the aspects of the previous jobs that the teachers disliked most.

Table 6. What Teachers Disliked Most About Previous Jobs.

Disliked Most	f
Long working hours, weekends	10
Employee problems	5
Cleaning up	3
Firing employees	2
Boredom or monotony of the job	2
Inadequate pay	2
Record or bookkeepping	2
Nothing or others	22

The types or kinds of previous employers most frequently listed are: major restaurants, hotels, country clubs, hospital and related institutions, restaurants, industrial or service corporations, retail and small bakeries, catering services, resorts, and major airlines.

The amount of experience in industry was 16.02 years ranging from 0 to 42 years. Specific years of experience for each individual is found in Appendix D.

Information was sought concerning: education; certification; years of teaching experience; reason for becoming a teacher; and experiences that would have been helpful in their present teaching position. Some of the findings are revealed in Table 7.

Table 7. Educational Background of the Teachers

Background	f	Total
Education		
GED	2	
High School	14	
Army Cooks and Bakers School	7	48
2-year College degree	8	
Baccalaureate or above	17	
Certification		
Vocational I	23	
Permanent	19	48
Other	6	

Of the eight teachers who attended a two-year college, five attended the Culinary Institute of America located in Hyde Park, New York. Seventeen, or thirty-five percent, have a baccalaureate or master's degree. Of these, fifteen held their degree before becoming a food service teacher. Eleven are women and have a home economics or dietetics degree.

Six teachers did not have a Vocational I or permanent certification. Three of these teachers held a B.S. degree and were pursuing permanent certification while three were working toward a Vocational I teaching certificate.

The average number of years that a teacher had been teaching food service is 5.8 years. The range extended from less than 1 to 30 years.

Table 8 shows the reason why teachers selected teaching as a career. Nine teachers listed categories not included in the table. Their reasons for selecting teaching as a career ranged from love of the field to opportunity to change their career.

Table 8. Why Teachers Selected Teaching as a Career.

Reason	f
Working with young people	17
Rewarding, fulfilling, challenging	6
Short hours	4
No answer	4
Ten month contract; retirement benefits	3
Felt need for vocational education	2
Professional advancement	2
Love for children	1
Others	9

Table 9 shows the experience the teachers would have liked to have before becoming a teacher. Sixteen were satisfied with their previous experiences. Ten listed varied experiences such as public speaking, writing, cake decorating, and being a vocational student during high school as experiences they would have preferred before becoming a teacher.

Table 9. Experiences Preferred Before Becoming a Teacher

Experiences	f
Educational courses	9
Formal trade instruction	3
More restaurant experience	2
More cooking skills	2
Visits to other vocational schools	2
Student teaching	2
Baking experiences	2
None	16
Other	10

The biggest problem cited by the teachers is coming into teaching "cold". That is, being placed in a classroom without any teaching experience or classes in methods of teaching. One teacher stated that it was hard to change one's acquired habits or behaviors.

The qualifications teachers felt were needed to be a successful teacher are listed in Table 10.

Table 10. Qualifications Teachers Need for Success.

Qualifications	f
Enjoy working with young people	16
Teacher concern for the individual	10
Intelligence	5
Enthusiasm	3
Friendly	3
Organization	2
Integrity	2
Empathy	1
Others	4

The student qualifications needed for an entry level job as ranked by the teachers are listed in Table 11.

Table 11. Qualifications Students Need for a Job.

Qualifications	f
Proper job attitudes	19
Interest in restaurant work	13
Poise, self confidence, enthusiasm	6
Pleasing personality	4
Emotional stability	3
Good health and appearance	2
Leadership	1

Teachers ranked in order of importance, the student qualifications needed for job entry upon graduation. These qualifications were taken from a list compiled by the National Restaurant Association and cited by West and Wood (1955).

Category II: Student and Class Information.

The questions in this section dealt with class size; special education or handicapped students; theory schedules; job placement of students; and types of food service industries where students are employed.

The most frequently occuring class size in both morning and afternoon sessions was in the 20-25 category. Table 12 shows the distribution for class size.

Twenty teachers indicated that more than 50 percent of the students in food service had selected it as their first choice among the various programs available at the AVTS. Twenty-one did not know the percentage of first choice students in their classes. Seven did not answer the question.

Table 12. Class Size Distribution

Size	f	
	a.m.	p.m.
8	4	4
11	0	1
12	0	2
13	2	1
14	1	4
15	2	2
16	6	0
17	3	4
18	3	3
19	1	3
20*	8	4
21	3	2
22	4	4
23**	1	8
24	3	0
25	5	4
26	0	0
27	0	1
28	1	0
35	1	1

* mean
** mode

Thirty-six teachers of the 48 responding, indicated that special education students constitute less than 10 percent of their classes. Most teachers indicated that they had only 1 or 2 special education students per class. The teachers from one school

stated that they had 80 percent learning disabled or emotionally handicapped students in food service. Many of the teachers revealed they make some changes in the curriculum to accommodate these students such as more simplified instructions and oral testing.

Thirty-seven of the instructors stated they have a three year program. Ten have a two year program and one is involved in a four year program.

Theory schedules vary with the most frequent being 30 minutes daily. Some teachers have theory three hours a week, often occuring on a day when they are not serving lunch. Others feel their schedule must be flexible and the time for theory varies.

It was discovered that many of the teachers helped in the placement of their students. This help occured because of the teacher's contacts with industry, and through their suggesting potential places of employment to students.

In many schools where the teacher is not actively involved in the placement of students, the role is assumed by the cooperative education coordinator or counselor.

According to the individual teachers, most of the graduates of the food service programs are working in restaurants, quantity foods, and fast foods, in that order. For those graduates of the program who decide to leave the profession, money and hours were listed as the reason for leaving by seventy-two percent of the teachers. Other reasons were poor counseling, lack of interest, appearance, and to get married.

Category III: Facilities and Scheduling

This section of the questionnaire sought information regarding the production and service of food to the faculty and public; physical plant; problems related to their program; effectiveness of advisory committees; and the teachers' perception of the role of the food service program within the school.

One of the objectives of the program is to develop skills and knowledge in the preparation and service of food. In order to accomplish this goal, the food prepared is usually served to the faculty in the restaurant dining room. Data collected from the survey is revealed in the following table.

Table 13. Production and Service of Lunch in the Restaurant and Cafeteria.

Service of Lunch	N
Restaurant:	
Faculty served (average)	45
Public and others (average)	15
Days of the week	
5 days a week	36
4 days a week	11
0 days a week	1
Cafeteria	
Programs responsible for preparation of cafeteria lunch	3

Approximately 80 percent of the teachers felt the food service program is primarily for instructional purposes. However, some food service teachers felt that other vocational teachers and personnel view the food service program totally as a service and convenience.

Eighty percent of the respondents stated that they have sufficient equipment. Some of those stating they lack equipment felt that what they had was old, in need of repair, and out of date. Several felt that their major need was a classroom because they are currently using part of the dining room or the stage in the cafeteria.

Seventy-two percent of the teachers viewed the half day session as the most significant problem they had. The reasons for this statement include: (1) limited learning program, (2) work is often repetitious, (3) lack of time for a student to complete work, and (4) students do not get to see the whole scope of the restaurant business.

Comments from the teachers regarding the influence of the administrative philosophy concerning the food service program covered a wide spectrum ranging from "little communication" to "encourages a splendid and effective program".

Advisory committees were established for the foods service programs in most schools. Only new programs lacked an advisory committee. The committees were viewed as helpful by most of the teachers; however, fourteen teachers feel they are unnecessary and of little help. The teachers felt the committee could be more effective if they would be more active, visit the school during session, help get jobs for the students, have close contact with the students and class activities, apprize the teachers of new developments in the industry and provide more input to the administration.

In addition to the above data, several questions were posed regarding curriculum. When asked to rank units of instruction according to importance of cognitive competencies, it appears the teachers ranked them according to the sequence in which they teach the units. Another question asked the teachers to divide their 15 hours of instruction per week into theory, demonstration, practical work, and other classroom or laboratory activities. Either the hours totaled more than 15 or the teacher did not answer the question. Therefore, the data obtained from these questions were either inadequate, incomplete, or incorrect.

Question #2

> What are the relationships among the seven teacher characteristic variables (i.e., age, sex, industrial experience, teaching experience, level of education, teacher perception of concern, and occupational specialization) selected for this study?

The intercorrelations among all the independent variables for the sample of 48 are listed in Table 14. This question is concerned only with the section of Table 14 below the dotted line. The intercorrelations of the 7 independent variables are shown here

Table 14. Zero Order Correlations Among the Seven Independent Variables and the Dependent Variable.

(N = 48)

	Variables						
No.	Name	1	2	3	4	5	6	7
SETC		-.06	.16	-.18	-.08	-.08	.01	.06
1.	Age		.06	.64**	.44**	-.09	-.24	.16
2.	Sex			-.46**	.24	.60**	.06	.42**
3.	Industrial Experience				.12	-.42**	-.18	-.14
4.	Teaching Experience					.22	-.10	.22
5.	Level of Education						.24	.62**
6.	Teacher's Perception of Concern							.18
7.	Occupational Specialization							

* significant at .05
** significant at .01

with their respective level of significance. The correlations in this analysis range from -.462 to .643. Positive significant relationships ($p<.01$) were found among 5 pairs of variables. Reading from left to right in Table 14 they are: age and industrial experience, age and teaching experience, women and level of education, women and occupational specialization, and level of education and occupational specialization. Significant negative relationships ($p<.01$) were produced between women and industrial experience and industrial experience and level of education.

Question #3

What is the relationship between each of the seven characteristics (i.e., sex, age, industrial experience, teaching experience, level of education, teacher perception of concern, and occupational specialization) and teacher effectiveness as measured by:

a. student's estimate of teacher concern
b. student achievement?

Zero order correlations were calculated between the seven teacher variables and each of the dependent variables, SETC and student achievement. The variable directly above the dotted line in Tables

14 and 15 indicates these relationships and are discussed separately for each dependent variable.

Referring to Table 14, it can be seen that correlations between Student's Estimate of Teacher Concern and the seven independent variables range from -.18 to .16. These correlations are uniformly low. Industrial experience and SETC and women and SETC have a higher correlation than the other variables. However, none of the variables were significantly related to the SETC measure at the .05 level.

Referring to Table 15, it can be seen that the correlations range from -.08 to .62 between the selected independent variables and achievement. Occupational specialization and achievement are positively related at the .01 level. This represents the only significant correlation for either dependent variable.

Two sets of data regarding the SETC are shown in Tables 14 and 15. Table 14 refers to the original sample involving 48 teachers while Table 15 refers to only those 17 teachers whose students took the Competency Exam. The discrepancy in SETC data occurs

Table 15. Zero Correlations for the Selected Subsample Between the Seven Independent Variables and the Two Criteria Variables: SETC and Achievement.

(N = 17)

No.	Variables Name	Ach	1	2	3	4	5	6	7
SETC		.07	-.01	.40	-.14	-.02	.28	.14	.26
Achievement			-.08	.32	-.06	.12	.28	-.02	.62**
1.	Age			-.26	.68**	.49**	-.46*	-.42	-.20
2.	Sex				-.62**	.12	.76**	.42	.72**
3.	Industrial Experience					.21	-.68**	-.34	-.34
4.	Teaching Experience						.12	.06	.10
5.	Level of Education							.48*	.68**
6.	Teacher's Perception of Concern								.32
7.	Occupational Specialization								

* significant at .05
** significant at .01

because of the difference in the N's. The second set of data (Table 15) was more heterogeneous consisting of 9 males and 8 females.

Question #4

What is the relationship between the two methods of measuring teacher effectiveness (i.e., students' estimate of teacher concern and student achievement)?

Referring to Table 15, it can be seen that student's estimate of teacher concern (SETC) and student achievement are almost totally unrelated (r = .07). This relationship is not significant at the .05 level.

Question #5

What is the relationship between all the teacher characteristics variables taken together and teacher effectiveness as measured by:

a. student's estimate of teacher concern
b. student achievement?

By referring back to Table 14, it can be seen that none of the seven independent variables are significantly related to the criterion of student's estimate of teacher concern, either negatively or positively.

The Multiple Regression Analysis was undertaken to examine the total amount of predictive information available from these seven variables concerning the SETC. The results of this analysis are presented in Table 16. The total multiple correlation (R) obtained from this analysis was .37. The coefficient of determination (R^2) is equal to .13.

The significance of the multiple correlation coefficient was tested by the overall F-ratio with 7 and 40 degrees of freedom. An F-ratio of 1.05 was obtained. This proved not significant at the .05 level.

The second part of question 5 is concerned with the achievement variable data listed in Table 15. By looking at the table, it can be seen that one of the seven independent variables (occupational specialization) shows a significant relationship at the .01 level to the dependent variable achievement.

In order to examine the total predictive ability of the independent variables, MRA was again utilized. The results are presented in Table 17.

The total multiple R obtained for this analysis was .71. The coefficient of determination (R^2) is equal to .50. The overall F-ratio with 7 and 9 degrees of freedom was 1.289 and was not significant at the .05 level.

Table 16. Regression Analysis Between the Seven Independent Variables in the Full Model and the Dependent Variable Student's Estimate of Teacher Concern.

(N = 48)

Variables	Partial Regression Coefficient	Standard Error	Student "t"
Age	.02	.13	.15
Sex	2.74	2.12	1.29
Industrial Experience	-.09	.07	-1.17
Teaching Experience	-.06	.15	-.42
Level of Education	-1.14	.57	-1.98
Teacher Perception of Concern	.23	1.64	.14
Occupational Specialization	.71	.69	1.03
Intercept (Constant)	25.31		
Standard Error of Estimate	4.79		
Multiple Correlation Coefficient (R)	.36		
Coefficient of Determination (R^2)	.13		
Overall F-Ratio	1.05		

Table 17. Regression Analysis Between the Seven Independent Variables in the Full Model and the Dependent Variable Achievement.

(N = 17)

Variables	Partial Regression Coefficient	Standard Error	Student "t"
Age	- .48	.56	- .87
Sex	- .62	10.56	- .06
Industrial Experience	.21	.47	.44
Teaching Experience	.86	1.17	.73
Level of Education	-1.10	2.66	- .41
Teacher's perception of concern	-6.60	7.29	- .90
Occupational Specialization	7.62	3.58	2.13
Intercept (Constant)	89.23		
Standard Error of Estimate		10.72	
Multiple Correlation Coefficient (R)		.71	
Coefficient of Determination (R^2)		.50	
Overall F-Ratio		1.29	

The partial regression coefficient is the amount of the independent variable associated with the dependent variable independent of all other variables. It is tested for significance by the student "t" obtained by dividing the standard error of partial regression coefficient into the partial regression coefficient. Table 17 indicates the only significant partial regression coefficient is occupational specialization at the .05 level. Although all other independent variables did not yield significant relationships, they help to account for 50% of the predictability of the dependent variable achievement. With 50% of the variance accounted for, the fact that statistical significance was not achieved is due in large part to the small sample size.

Additional Information

Further analysis of the sub-sample (N=17) found in the summary table (Appendix D) elicited additional information. This information is presented here because it provides additional insight into the variables selected for this study.

Using the mean student achievement score (106.9) as a cut point, variables sex, occupational speciali-

zation, education, industrial experience, and teaching experience were divided into two groups: (1) those ranking above the mean (N=12) and (2) those ranking below the mean (N=5). The data are presented below for each variable.

1. Occupational Specialization - Eighty percent of those teachers whose students scored below 106.9 on achievement, fell into occupational specialization groups 4 or below. Seventy-five percent ranking above the mean were in occupational specialization categories of 5 or above. The categories ranged from 1-6 with 6 being the highest specialization.
2. Education - Sixty percent of those teachers whose students scored below the mean were in category 4 or below, while sixty-seven percent ranking above the mean were in category 5 or above. Education categories ranged from 1-7 with 7 being the greatest level attained.
3. Industrial experience - The average number of years of industrial experience for those teachers whose students scored below the mean

was 13.8. The average years of experience for those above the mean was 15.16.

4. Teacher experience - The difference was slight with the range from 4.6 to 5.0 years. Those students whose score was below average on achievement had teachers who averaged more years of teaching experience (5.0).
5. Sex - Eighty percent of those teachers whose students scored below average on achievement were males while sixty-seven percent ranking above average were females. Nine males and eight females participated in this phase of the study.
6. SETC - Eighty percent of those teachers whose students scored below average on achievement ranked above average on the SETC. Sixty-seven percent of those above average on achievement were above average on the SETC. The mean SETC score for the five teachers ranking below average on achievement was 23.4, while the average SETC score for those 12 above the achievement mean was 24.6. Both of these means

were above the overall mean (N=48) of 22.08. Seventy-one percent of the total 17 teachers had students who scored above the SETC mean compared with 55 percent of the total 48 teachers who ranked above the mean of 22.08 for the SETC test.

V

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Vocational food service teachers are recruited from graduates of four year colleges, two year colleges or technical schools and from industrial environments. Those vocational education teachers who are recruited primarily from industry are required to have a knowledge of the trade, currently defined as sufficient employment experience, and a willingness to work toward teacher certification. In Pennsylvania, within three years after employment, the teacher must attain a Vocational Instructional I certification, requiring 18 hours of college courses. At the end of 60 college credits in appropriate subjects and three years of teaching experience, a Vocational Instructional II certificate may be granted which constitutes permanent certification. This 60 credit approach to certification assumes that individuals completing the program are capable of effective teaching. Little research has been conducted to investigate what teacher characteristics actually do relate to effectiveness in a vocational school setting.

Statement of the Problem

The purpose of this study was to determine the relationship between selected teacher characteristics of current food service teachers and their effectiveness as teachers. The criteria of effectiveness chosen were: (1) cognitive learning of pupils enrolled in vocational food service programs, and (2) student's estimate of teacher concern. Cognitive learning was measured by the Pennsylvania Competency Examination for Quantity Foods. Student's perception of their teacher's concern was measured by the Student's Estimate of Teacher Concern test, form B. Teacher characteristics were defined as age, sex, industrial experience, teaching experience, level of education, teacher's perception of concern, and occupational specialization. Answers to the following questions were sought:

1. What are the general characteristics of the food service programs from which the sample was drawn?
2. What are the relationships among the seven teacher characteristic variables (i.e., age, sex, industrial experience,

teaching experience, education, teacher perception of concern, and occupational specialization) selected for this study?

3. What are the relationships between each of the seven teacher characteristics (i.e., age, sex, industrial experience, teaching experience, education, teacher perception of concern, and occupational specialization) and teacher effectiveness as measured by:
   a. student's estimate of teacher concern
   b. student achievement?
4. What is the relationship between the two methods of measuring teacher effectiveness (i.e., student's estimate of teacher concern and student achievement)?
5. What is the relationship between all the teacher characteristic variables taken together and teacher effectiveness as measured by:
   a. student's estimate of teacher concern
   b. student achievement?

Procedure

The sample for this study consists of 48 food service teachers and 495 of their students in 31 schools. Data concerning the SETC test and the teacher questionnaire-interview were obtained during the spring of 1975. The Pennsylvania Competency Test for Quantity Foods was administered during the spring of 1976 to 116 students. Students from 17 schools participated in this phase of the study.

The teacher characteristic variables selected as independent variables for this study were: age, sex, industrial experience, teaching experience, level of education, teacher perception of concern, and occupational specialization. The dependent variables used were student's estimate of teacher concern and student achievement.

Analysis of the data employed three statistical methodologies. Question one utilized descriptive statistics such as the means, standard deviations, and sample size. The Pearson Product Moment Correlation (PPMC) was used to answer questions 2, 3, and 4, while question number 5 utilized multiple regression analysis (MRA).

Findings

The descriptive data concerning the 48 teachers involved in the questionnaire produced information regarding the teacher's background and the food service program. The average age of the food service teacher is 38.23 years, average number of years of industrial experience is 16.02, and the average number of years of teaching experience is 5.8. The food service program is most often of 3 years duration and the average class size is 20-25 students per teacher.

Significant relationships were found between 7 pairs of variables. Five of the seven represented positive relationships and were: age and industrial experience, age and teaching experience, sex and level of education, sex and occupational specialization (women higher in both cases), and level of education and occupational specialization. Negative relationships were found between sex and industrial experience (women lower), and industrial experience and level of education.

Zero order correlations were calculated between the seven independent variables and each of the de-

pendent variables. Correlations between SETC and the seven independent variables were uniformly low and not significant at the .05 level. Correlations for the Competency Exam and the seven independent variables produced a significant relationship between occupational specialization and achievement.

The two criteria (SETC and Competency Exam) selected for measuring teacher effectiveness lacked a significant relationship with each other (r=.07).

The MRA was undertaken to examine the total amount of predictive information available from the seven independent variables. The multiple R for the SETC (N=48) analysis was .37. The partial regression coefficients did not yield a significant relationship at the .05 level. The multiple R for the achievement criterion was .71 indicating that these variables account for 50 percent of the predictability of the dependent variable achievement. However, this is not significant and is probably due to sample size. The only partial regression coefficient yielding a significant relationship with the achievement variable was occupational specialization at the .05 level.

Discussion

Question #1

In question number one, the general characteristics of the food service programs are explored. This profile provides information concerning teacher's background, student data, and program operations. These characteristics are discussed here in that order.

The teacher sample consisted of 48 teachers participating in the survey. Information extrapolated from Table 1 indicates that the average age of the food service teacher in eastern Pennsylvania is 38.23. The vocational teachers in this sample were younger than those reported by Rumpf (1954) and Finch (1969), who reported average ages of 45.51 and 42.8, respectively. The average years of industrial experience accumulated by these teachers was 16.02 compared with 12.0 years reported by Rumpf and 14.1 reported by Finch. The average number of years of teaching experience was 5.8 which is less than Finch reported (7.4). Thus, the food service teachers in this sample appear to be younger, have more years of industrial experience, and less years of teaching experience than those teachers studied by Rumpf and Finch.

Table 3 indicates that the average food service teacher has either a Vocational Instructional II level of education which represents 60 hours of college credit, or they had a two year associate degree such as that issued by the Culinary Institute of America. Twenty-three of the teachers have a Vocational I and 19 are permanently certified.

Occupational specialization was determined by placing the teacher in the category which represents the degree of job specialization they have attained. Each teacher was placed in 1 of 6 categories ranging from unrelated to professional. An example of unrelated is hatmaker, while an example of professional is dietitian. The average food service teacher has progressed from unrelated or semi-skilled positions to that of a manager or owner before becoming a teacher. This average is a reflection of those teachers who have attained a technically trained or professional background which tends to elevate the average. Most of the teachers in this sample have entered the profession by way of industrial experience and have held semi-skilled or skilled positions; been managers or owners; or received specific food industry training. The types of jobs held most

frequently were cook, chef, and baker. They worked primarily in major restaurants, hotels, country clubs, and hospital and related institutions.

The primary reasons these individuals chose to leave the industrial setting for the teaching profession was listed as the desire to work with young people. Other reasons given were short hours, working ten months, retirement benefits, and professional advancement.

The food service program is most frequently viewed as a three year program. The most frequently occuring class size is in the range of 20-25. Most of the teachers have a regular schedule for theory, although some indicate the need to be highly flexible depending on the kind of production scheduled. Theory is usually scheduled for 30-45 minutes daily; although some instructors have one day (3 hours) per week reserved for theory.

Some of the teachers indicated that their curriculum could be improved by having a regular classroom assigned for theory. Many teachers are currently using the cafeteria or dining room for a classroom. A majority of the teachers viewed the current half-day program as a major problem. They felt that having the

students remain at the vocational school for a full day on a rotating schedule with the home school presented advantages currently neglected. Although this would involve intricate home school scheduling, it would provide the students with a more realistic view of the food service business and the world of work.

Question #2

This question deals with the relationships among the seven teacher characteristic variables selected for this study. The correlational analysis indicates that older teachers have more industrial experience and more teaching experience. Women have less industrial experience, but more teaching experience than do men. Women also have more formal education and a greater level of occupational specialization than do men. This finding may be explained by the fact that most of the women participating in this study held degrees in either home economics or dietetics plus advanced and specialized job training and professional occupations before becoming teachers.

Foods service teachers in this study, with more industrial experience, have less formal education. A

similar finding, regarding vocational teachers in general, is also reported by Finch (1968) and Kapes and Pawlowski (1976). Teachers with a higher level of education also have a greater level of occupational specialization. This observation may be explained by the fact that these teachers enter the job market at a higher level of specialization because of their advanced education and training.

Question #3

This question was concerned with the relationship between each of the independent variables and each criterion variable. It was found that there are not significant relationships, either positive or negative, between the criterion variable SETC and each of the seven independent variables. This finding indicates that how the teachers convey their concern for individual students depends on other factors than those measured in the study. Similar results were found by Wilhelm (1968), Murray (1968) and Finch (1969).

It is possible that this variable may be the result of personal development and might not be measured by any of the seven independent variables selected for this study. In addition to her findings on self-actualization and SETC, Murray (1968) also reported that

neither age nor teaching experience were relevant factors affecting the SETC.

In dealing with the relationships between student achievement and the seven selected teacher variables, it was found that occupational specialization possessed a significant relationship with achievement as measured by the Competency Examination for Quantity Foods. From these results, it can be concluded that higher levels of occupational specialization (i.e., managerial, technically trained, and professional) attained by teachers contribute more to the achievement of their students than any other variable among those assessed in the study.

It is important to point out that industrial experience (which has been a pre-requisite for employment as a vocational teacher) did not show a significant relationship with achievement. This failure to correlate with achievement supports the research of Brown (1971), Garner et al. (1974), Swartz (1975), and Kapes and Pawlowski (1976).

Question #4

This question was concerned with the relationship between the two types of criteria used to mea-

sure teacher effectiveness: cognitive (Competency Exam) and affective (SETC). Although a slight positive relationship was found (.07), the size of the relationship was almost zero. Therefore, it must be concluded that they are not related, perhaps because of the very nature of the two tests involved. The SETC measured how students perceived their teacher's concern for them while the achievement test measured the student's cognitive abilities (foods) on a written test. Thus, the phenomena of the tests indicate they measure two different entities.

Question #5

This question dealt with the combined effects of the seven teacher characteristics upon each of the criterion variables, SETC and student achievement.

The relationship between SETC and the seven teacher characteristics was not significant (R=.375). The relationships accounted for only 13 percent of the variance in the SETC score. This finding suggests that other factors not considered in this study are more responsible for the SETC score. Many of these factors probably are of affective origin such as

teachers values, attitudes, and self concepts. These factors have been successfully measured using the SETC by Perry (1967), Murray (1968), and Wilhelm (1968).

A significant relationship was found between achievement and occupational specialization. The zero order correlation for occupational specialization was .62, indicating that this variable alone accounted for 38 percent of the variance found in the achievement score. Therefore, using these independent variables, occupational specialization accounted for the majority of the variance. It should be pointed out that the occupational specialization variable was highly related to the sex and level of education variables in this study. The total multiple R for this analysis was .71, which accounted for 50 percent of the variance of the achievement score. However, even with such a high correlation, this relationship was not significant and this lack of significance is probably due to the small sample size (N=17). Other variables may be involved in determining the achievement score; nevertheless, the independent variables used in this study result in a noteworthy fifty percent of explained variance in student achievement.

Conclusions

This investigation has produced data suggesting changes or improvements in the current vocational food service educational thrust. New ideas for expanding the current study have been generated. Different approaches to discovering more about the concept of teacher effectiveness have been suggested. Some of the recommendations that follow are based on an N of 17 (vocational schools). It is understood that a larger N is to be desired. However, this number represented about one quarter of the area vocational schools in Pennsylvania. The following are observations and conclusions drawn from this study:

1. Seventy-two percent of the teachers report a need to revise the scheduling so that food service students can participate in a full day shop attendance vs. the present half day. This would require a rotating schedule between their home high school and the AVTS on a week or two week basis. Other alternatives to the scheduling pattern may be employed, for example, concentration on the academic requirements

through the first semester of the junior year at the home high school. This arrangement would provide the same year and a half concentration on the student's chosen vocational subject (foods) for the remainder of their high school experience.

2. Food service teachers in this sample, are younger and have more years of industrial experience, but less teaching experience than those vocational teachers studied by Rumpf and Finch.
3. The teachers who were older, had the greatest accumulation of industrial and teaching experience.
4. Women have more formal education and greater levels of occupational specialization, but less industrial experience than men. Women entered the job market later than men but at a greater level of specialization.
5. Teachers with more years of industrial experience also had less formal education, and those with more education had a greater level of occupational specialization.

6. None of the independent variables (age, sex, industrial experience, teaching experience, level of education, teacher perception of concern, and occupational specialization) correlate with the SETC.
7. The variable occupational specialization showed a significant relationship with student achievement. This could indicate that those teachers with more concentrated and varied experiences had developed a curriculum focusing on the basic student competencies measured by the Competency test.
8. A lack of a common curriculum focusing on developing competencies for entry level jobs may account for the low score of the students on the Competency test.
9. The lack of a significant relationship between industrial experience and achievement suggests a lower priority be given to amount of industrial experience when establishing criteria for employment of vocational food service teachers.

10. The lack of a statistically significant relationship between the two dependent variables (Student's Estimate of Teacher Concern and student achievement) indicated that, in fact, they must measure two different things.
11. There is no significant relationship between all the teacher characteristic variables together and the SETC. This is understandable since each variable also did not correlate.
12. While occupational specialization alone accounted for 38 percent of the variance found in the achievement score, all of the variables summed to 50 percent of the variance. This was non-significant, probably due to sample size.

Recommendations

The following recommendations are based on the study and relate to either changes in the educational system or need for further research.

Changes in the Educational System

1. This study revealed that 72% of the teachers felt a half day food service program limits the educational opportunities for students. It therefore is recommended that administrators consider changing the half day vocational food service programs to a full day student participation on a rotation basis with the home school.
2. The absence of a significant relationship between teacher industrial experience and student achievement supports previous studies concerning vocational teachers and industrial experience. This finding is the basis for the recommendation that the continued use of industrial experience as a criterion for entry into the vocational teaching field be revised and more specifically, reduced. For example, those individuals who have graduated from the Culinary Institute of America, or a four year

college focusing on the food service profession, may enter into a teaching job without industrial experience in addition to that required for graduation from their respective institutions.

3. A major finding indicated that the higher the level of teacher occupational specialization, the greater the pupil growth. It is therefore recommended that in order to promote greater student achievement, teachers with more education and specialization should be selected for food service teachers.
4. The mean score for the Competency Examination was 106.9 out of a possible 239 points representing less than 50% of the questions answered correctly. These statistics lead to the recommendation that consideration be given to emphasizing concepts and cognitive skills that will develop student competencies applicable to entry level occupations.

5. It is recommended that the Competency Exam be revised in terms of the competencies and skills needed for entry level jobs in the food service business.

Need for Further Research

In the course of this investigation, the following areas were found to require further research:

1. The non-significant relationship between the independent variables and the SETC test suggest that a different analytical approach be undertaken. A study focusing on values, self-concepts, and self-actualization, as well as the SETC, may provide more information and insight into the nature of affective characteristics in vocational food service teaching.
2. A similar study involving a larger sample of both students and teachers may yield more definitive results. In such a study, additional measures of achievement should be involved, such as shop grades, teacher ratings, and employer

ratings. A student abilities test should also be given to indicate the achievement potential of the individual students. If a student's ability is relatively low, this factor need not penalize the teacher's mean achievement score.

3. A longitudinal study involving a pretest would contribute further data. Advanced students could be administered the competency examination after at least two years of study to determine the degree of growth which results from the treatment (i.e., exposure to food service competencies).
4. It is recommended that a similar study be conducted involving teachers across the six areas in vocational education (i.e., agriculture, business, health occupations, home economics, distributive education, technical, and trade and industries). By conducting such a study, it could

be ascertained if in all vocational programs, the same teacher characteristics relate to teacher effectiveness.

REFERENCES

Barr, A. S. and others. "Report of the Committee on the Criteria of Teaching Effectiveness". Review of Educational Research, 22: 238-63, 1952.

Barr, A. S. "The Assessment of the Teacher's Personality". The School Review, 68(4): 400-408, 1960.

Barr, A. S. et al. Wisconsin Studies of the Measurement and Prediction of Teacher Effectiveness: A Summary of Investigation. Madison, Wisconsin: Dembar Publications, Inc., 1961.

Biddle, B. J. and Ellena, W. J. editors. Contempory Research on Teacher Effectiveness. New York: Holt, Rinehart, and Winston, Inc., 1964.

Boyd, Joseph L. and Shimberg, Benjamin. Handbook of Performance Testing. Educational Testing Service, Princeton, N.J., 1971.

Brown, Betty Jean. "The Qualities of an Effective Pre-Vocational Business Education Teacher". Bethesda, Md., ERIC Document Reproduction Service, ED 065-696, 1971.

Christensen, C. M. "Relationships Between Pupil Achievement, Pupil Affect Need, Teacher Warmth and Teacher Permissiveness." Journal of Educational Psychology 51: 169-174, 1960.

Comer, John C. "Trade Competency Testing Via Specimen Inspection." Journal of Industrial Teacher Education. Fall: 50-54, 1971.

Dandes, Herbert M. "Psychological Health and Teaching Effectiveness." Journal of Teacher Education, 17(3): 301-305, 1966.

Department of Public Instruction. "Education for Home-Making in the Secondary Schools of Pennsylvania". Bulletin 320. Harrisburg, 1955.

Finch, Curtis R. "The Trade and Industrial Background, Values, and Attitudes Toward Teaching." Journal of Industrial Teacher Education, 62: 55-64, 1969.

Flanders, Ned. "Some Relationships Among Teacher Influence, Pupil Attitudes, and Achievement." In Contemporary Research on Teacher Effectiveness, ed. Biddle and Ellena, New York: Holt, Rinehart, and Winston, 1964.

Gage, N. L. "Explorations in Teacher's Perceptions of Pupils." In Social Perception, ed. Toch and Smith. Princeton, N.J.: D. Van Nostrand Company, Inc., 1960.

Gage, N. L. "Paradigms for Research on Teaching." In Handbook of Research on Teaching, ed. N. L. Gage, Chicago: Rand McNally, 94-141, 1963.

Garner, C. W., Brantner, S. T. Kapes, J. T., Long, T. E., and Welch, F. G. Vocational-Industrial Teacher Education at the Pennsylvania State University: An Examination of Program and Student Characteristics. University Park, Pennsylvania: Department of Vocational Education, The Pennsylvania State University, 1974.

Impellitteri, Joseph T. "Selected Papers of Joseph T. Impellitteri." Ed. by Baran, Anna and Gilli, Angelo C. Sr., Bethesda, Maryland: ERIC Documents Reproduction Service, ED 113 511, 1975.

Jenkins, Joseph R. and Bausell, R. Barker. How Teachers View the Effective Teacher. Bethesda, Md.: ERIC Document Reproduction Service, ED 075 364, 1973.

Kapes, Jerome T. and Long, Thomas E. "An Assessment of the Criterion-Related Validity of the Ohio Trade and Industrial Education Achievement Test Battery". Journal of Industrial Teacher Education. 9(1): 6-14, Fall, 1971.

Kapes, Jerome T. and O'Reilly, Patrick A. "A Model for the Use of Success Criteria in Vocational-Technical Educational Research". Journal of Industrial Teacher Education. 11(1): 35-42, Fall, 1973.

Kapes, Jerome T. and Pawlowski, Vladimir. "Vocational Technical Teacher Characteristics as Related to Student Shop Achievement." Journal of Industrial Teacher Education, 13(4): 5-14, 1976.

Kenny, James and others. How Students See Teachers. Bethesda, Md.: ERIC Document Reproduction Service, ED 077 921, 1972.

Mosher, Ralph L. and Purpel, David E. Supervision: The Reluctant Profession. Boston: Houghton-Mifflin, 1972.

Murray, M. Eloise. "Self Actualization and Social Values of Teachers as Related to Students' Perception of Teachers". Doctoral Dissertation at Pennsylvania State University, 1968.

Musella, Donald. "Improving Teacher Evaluation". Journal of Teacher Education. 21: 15-21, 1970.

Nygren, Gertrude. "Teacher Concern and Its Measurement." Journal of Home Economics. 52: 177-180, 1960.

Parkhurst, M. R. "Students Perceptions of Teacher Gestures Related to Levels of Concern and Direct-Indirect Verbal Behavior." Doctoral Dissertation at Pennsylvania State University, 1974.

Patton, Robert A. and DeSena, Paul A. "Identification Through Student Opinion of Motivating and Nonmotivating Qualities of Teachers." The Journal of Teacher Education, 17: 41-45, 1966.

Pennsylvania Department of Education. Regulations - Certification for Vocational Education. Bureau of Vocational, Technical and Continuing Educatio Harrisburg, 1972.

Perry, Suzanne. "Student Teachers' Attitudes Toward Selected Social Settings and Concern for Students." Master's Thesis at Pennsylvania State University, 1967.

Powers, Thomas F. "Food Service in 1985: The Challenge Ahead for Food Service Education." Paper presented to the Council on Hotel, Restaurant, and Institutional Education, Miami, Florida, August, 1975.

PSEA. You and Your Teaching Certificate. Harrisburg, Pennsylvania, 1972.

Purkey, William W. Self Concept and School Achievement. New Jersey: Prentice Hall, Inc., 1970.

Ray, Elizabeth. "Relationship of Students' Estimate of Teacher Concern to Teaching Effectiveness." (Doctoral dissertation, Cornell University) Ann Arbor, Mich.: University Microfilms, 1959, No. 60-616.

Ray, Elizabeth. "Teacher Concern Related to Teaching Effectiveness." Journal of Home Economics. 52: 181-184, 1960.

Ray, Elizabeth. Personal Communication, 1975.

Roberts, Roy W. Vocational and Practical Arts Education. New York: Harper and Row Publishers, 1965.

Rogers, Carl. "The Interpersonal Relationship: The Core of Guidance." Harvard Educational Review, 32: 416-422, Fall, 1962.

Rumpf, Edwin L. "A Basis for the Selection of Vocational Industrial Teachers for Employment in Pennsylvania." Doctoral Dissertation at Pennsylvania State University, 1954.

Ryan, Kevin and Cooper, James M. Those Who Can, Teach. Boston: Houghton Mifflin Company, 1972.

Ryans, David G. Characteristics of Teachers. American Council on Education, Washington, D. C., 1960.

Ryans, David G. "Research on Teacher Behavior in the Context of the Teacher Characteristics Study." In Contemporary Research on Teacher Effectiveness, ed. Biddle and Ellena. New York: Holt, Rinehart, and Winston, 1964.

Saadeh, Ibrahim Q. "Teacher Effectiveness or Classroom Efficiency: A New Direction in the Evaluation of Teaching". Journal of Teacher Education, 21: 73-91, 1970.

Sarasam, Seymour B., Davidson, Kenneth S., and Blatt, Burton. The Preparation of Teachers: An Unstudied Problem in Education. New York: John Wiley and Sons, Inc., 1972.

School Laws of Pennsylvania. Department of Education, Commonwealth of Pennsylvania, Harrisburg, PA. 1971.

Skinner, B. F. The Technology of Teaching. New York: Meredity Corporation, 1968.

Sprinthall, Norman A., Whiteley, John M., Mosher, Ralph L. "A Study of Teacher Effectiveness." Journal of Teacher Education. 17: 93-106, 1966.

Sullivan, George. The Image of the Effective Teacher. New York: The Central School Study, Teachers College, Columbia University, 1963.

Swartz, Ned K. and Vivekananthan, Pathe S. Teacher Characteristics and Teacher Effectiveness of Vocational Industrial Education Instructors. Bethesda, Md.: ERIC Document Reproduction Service, ED 109 365, 1975.

Test Manual, Technology Examination in Quantity Foods. Department of Education, Commonwealth of Pennsylvania. Harrisburg, Pa. (n.d.).

Toch, Hans and Smith, Henry Clay. Social Perception. Princeton, N.J.: D. Van Nostrand Company, Inc., 1968.

Tyler, Ralph. "Applications of the Behavioral Science." Teacher Education: A Reappraisal" Ed. Elmer R. Smith, New York: Harper, 1962.

Washburne, Carlton and Heil, Louis M. "What Characteristics of Teachers Affect Children's Growth." The School Review, 68(4): 420-428, 1960.

Weaver, Gilbert, Conner, S. Grant and Pantiz, Adolf. Shop Organization and Management for Vocational Teachers. Industrial Teachers Training Monograph Series. nd., n. p.

West, Bessie B. and Wood, Levelle. Food Service in Industry, New York: John Wiley and Sons, Inc., 1955.

Wilhelm, Winifred Pyle. "Self Actualization of Teachers and Students as Factors in Teaching Effectiveness." Master's Thesis at Pennsylvania State University, 1968.

APPENDIX A

Teacher Questionnaire

NO_____

DATE_____

M_____F_____

1. Age ____20-25 ____30-35 ____40-45
   ____25-30 ____35-40 ____45+

2. What kinds of jobs did you have before becoming a teacher?

3. List specific duties you performed while engaged in the jobs listed above.

4. What was your specialty?

5. What did you like most about the jobs?

6. What activities did you dislike doing?

7. What kinds of employers did you work for? Ex. Gino's.

8. How many years experience in the industry do you have?

EDUCATION:

1. High school attended_____
2. Trade School_____No. of Credits___Yrs_____
3. College_____No. of Credits___Degree_____
4. Additional professional training in foods_____
   _____
5. Date of most recent college course_____

CERTIFICATION:

____Credits toward Voc. I ____Voc. I

____Temporary ____Voc. II

____Permanent ____Other (Please specify)

____Credits presently taking _____

TEACHING EXPERIENCE:

1. List the number of years you have taught_____
2. How many of these years were in your present profession_____
3. How many years in the present school_____Are you tenured_____
4. Do you hold membership in a group organization related to your trade? ____Yes ____No. If so, what is the name of the organization?_____

   _____
5. Teaching has been described in many ways such as rewarding, time consuming, and difficult. Why did you select teaching as a career?

PROFILE OF CLASS:

1. How many students are enrolled in:____a.m. class?

   ____p.m. class?

   What is the student/teacher ratio?_____
2. Of the number of students enrolled in your program, what percentage chose foods as their:

   ____First choice ____Third choice

   ____Second choice ____Don't know
3. Do you have mentally retarded and physically handicapped enrolled in your classes? ____Yes ____No.

   If so, do you know how many?

   ____Percentage of mentally retarded

   ____Percentage of physically handicapped
4. Do you make changes to accommodate them?_____

   If so, what changes are made?_____

CURRICULUM:

1. Is this program a: ___three year program or a ___two year program?

2. Of the 15 hours a week that you have the student, how many hours do you spend in:

____demonstration
____lecture
____visual aide presentations
____one to one instruction
____laboratory
____classroom assignments
____evaluation of products
____group instruction
____planning

3. Do you have a planned sequence of experiences during the time you have the students?

4. What is your classroon theory schedule?

5. There are various subject areas in the teaching of food service. Rank in order of importance the following:

___Orientation
___Service of food
___Equipment
___Sanitation
___Meal Planning & Nutrition
___Management
___Cost Control
___Purchasing
___Catering
___Ice Carving
___Cake Decorating
___Other
___Meat
___Fish
___Poultry & Eggs
___Milk & Dairy Products
___Soups, Stock, Sauces & Gravies
___Beverages & Food Adjuncts
___Fruits & Vegetables
___Yeast Products
___Quick Breads, etc.
___Cakes, Cookies & Frostings
___Pies & Desserts

6. Extensive knowledge, skills, and background in all of these areas is rare. In which of these topics would you desire supplimentary material, workshop, or other help? List below.

7. Have you used any of the following textbooks?

	Frequently	Regularly
a. Food Preparation for Hotels, Restaurants, and Cafeterias - Haines	_____	_____
b. Professional Food Preparation - Terrell	_____	_____
c. Understanding Cooking - Ludberg	_____	_____
d. Professional Chef	_____	_____
e. Food Preparation - Andrews	_____	_____
f. Professional Restaurant Service - Andrews	_____	_____
g. Other	_____	_____

8. What procedure do you use for selecting a textbook?

____trial period

____careful review of selected sections of more than one book

____recommended by another food service teacher

____Other

9. What reference books do you frequently use?

10. In what way could personnel with the state be of help to you? List in order of priority. (No. 1 is rated highest)

____preparation of curriculum guides

____preparation of learning modules

____writing behavioral objectives or performance goals

____preparation of evaluation materials

____Other (Please specify)

11. Students are constantly asking for relevance in education. Rank the fields in which you believe there will be the greatest opportunity for advancement:

	Financial Reward	Professional Development
a. quantity or institutional foods	_____	_____

	Financial Reward	Professional Development
b. fast food	_____	_____
c. restaurant	_____	_____
d. catering	_____	_____
e. specialties	_____	_____

12. Based on your knowledge of your graduates employment over the past several years, what percentage of your students remain in the food services_____

    a. What percentage of those remaining in the industry is now working in:

    ____quantity foods

    ____restaurant

    ____fast food

    ____other

    ____don't know

    b. Of those graduates who leave the industry, what in your opinion is the main reason for leaving?

13. Do you participate in the placement of your students?

    ___Yes ___No

    If so, how_____

    _____

    If not, who does_____

14. How is the knowledge of available career opportunities presently presented to your students:

    ____lecture ____learning module

    ____outside speakers ____advisory committee

    ____counselor ____field trips

15. List in order, the qualifications you feel a teacher needs to be a successful foods instructor. Some of them may be:

    ____concern for the individual ____organization

    ____enthusiasm ____empathy for others

    ____intelligence

    ____friendly ____integrity

15. (cont'd.)

____enjoy working with young people

____good health & appearance

List any others you can think of.

16. In retrospect, what experiences (work, schooling, other) do you wish you had had before becoming a teacher that would better qualify you for the job of food service instructor?

17. As you view your vocational graduates and the types of jobs they enter upon graduation, rank, in order of importance, the following qualifications:

____Above average grades

____Leadership in school

____Pleasing personality

____Emotional stability

____Good health and appearance

____Poise, self-confidence, and enthusiasm

____Executive aptitude

____Evidence of interest in restaurant work

____Job attitudes

18. Describe your over-all food service goal for your:

a. top students

b. average students

c. special students

FACILITIES:

1. Do you serve lunches to: _____faculty

_____other _____public

2. What is the approximate number of lunches you serve daily to the:

_____faculty _____public

3. How many days a week do you serve lunches?

4. Do you have a day reserved for theory and instruction when you do not serve lunches?

5. Do you feel the food service program is:

_____a service area

_____for instructional purposes

_____a convenience

6. Are students involved in the cafeteria serving and preparation:

_____almost totally run by students

_____rotated in small numbers on a weekly basis

7. Do you have sufficient equipment for instruction?

_____Yes _____NO

If not, list the equipment you feel would improve instruction and why.

8. Do you have sufficient time for instruction?

9. In your opinion, what is the most significant preparation or serving problem you have?

10. Give an example of the above.

11. How does the school philosophy influence your program? (facilities available, serving the public, curriculum preparation)?

12. Do you have an advisory committee? _____Yes _____No

13. Are they helpful? _____Yes _____No

14. How could the advisory committee be more effective?

APPENDIX B

Students' Estimate of Teacher Concern

NUMBER_____A____B____C____D____

ALL THE QUESTIONS ON THIS PAPER REFER TO THE SAME TEACHER.

Read each question carefully and answer according to your own feelings about this teacher.

DIRECTIONS: If your answer to a question is "YES", circle the YES following the question. If your answer is "NO", circle NO.

1. Do you think it matters to this teacher if you are happy or unhappy?	YES	NO
2. Does this teacher make you feel that what you say or do, or want to do is important?	YES	NO
3. Does this teacher seem to want to know you better?	YES	NO
4. Do you feel at ease and comfortable when you talk to this teacher?	YES	NO
5. Has this teacher tried to help you understand yourself better?	YES	NO
6. Has this teacher helped you to work easily and happily with all kinds of classmates?	YES	NO
7. Do you feel you can talk with this teacher about your problem?	YES	NO
8. Does this teacher really know how you feel so that you want to discuss your problems?	YES	NO
9. Has this teacher tried to help you feel more at ease in social situations?	YES	NO
10. Do you feel this teacher has done anything to help you to solve your own problems?	YES	NO
11. Would this teacher be willing to help you to get a job?	YES	NO
12. Does this teacher seem to understand what you mean to say even when you don't express yourself very well?	YES	NO
13. Has this teacher done anything to help you to see more clearly what some of your problems are?	YES	NO

14. Is this teacher friendly to all the students? YES NO

15. Has this teacher tried to help you become a better person? YES NO

16. Does this teacher give you as much attention as other students get? YES NO

17. Does this teacher think your problems are just as important as those of other students in the class? YES NO

18. Would this teacher be willing to help you get a job? YES NO

19. Does this teacher know what you can do and cannot do? YES NO

20. Has this teacher helped you to be a better leader? YES NO

21. Do you think you will want to talk over your problems with this teacher even when you are not in the course? YES NO

22. Does this teacher know how to help you so that you don't mind being helped? YES NO

23. Can you talk things over with this teacher even when your problems are not related to class? YES NO

24. Would this teacher help you if you get into any kind of trouble? YES NO

25. Does this teacher think you are as important as anyone else in the class? YES NO

26. Has this teacher helped you to think and say what you feel is right? YES NO

27. Does this teacher seem to know how to help you express things that you don't YES NO

28. Has this teacher shown you ways of doing things so you have more fun doing them? YES NO

29. Has this teacher helped you to learn ways in which you could become a better family member? YES NO

30. Does this teacher help you to look for answers to some of your questions so that you learn more than if you were told the answers? YES NO

APPENDIX C

List of Vocational Techincal Schools Participating in:

a. Teacher Questionnaire

b. Students' Estimate of Teacher Concern (SETC)

c. Competency Exam or Achievement

APPENDIX C

Vocational-Technical Schools Cooperating in the Teacher Questionnaire, SETC, and Achievement Test.

(N=31)

Schools	SETC	Achievement
1. Berks - East	*	
2. Berks - West	*	
3. Bethlehem	*	
4. Middle Bucks	*	
5. Carbon County	*	*
6. Central Chester	*	*
7. Central Montgomery	*	
8. Delaware County - Aston	*	
9. Delaware County - Folcroft	*	
10. Delaware County - Marple	*	
11. Eastern Northampton	*	*
12. Hazleton	*	*
13. Lackawanna County - North	*	*
14. Lackawanna County - South	*	*
15. Lancaster County - Brownstown	*	*
16. Lancaster County - Mt. Joy	*	*
17. Lancaster County - Willow Street	*	*
18. Lebanon County	*	*
19. Lehigh County		

Participating Schools (cont.)

Schools	SETC	Achievement
20. Lower Bucks	*	
21. Monroe County	*	*
22. Eastern Montgomery	*	
23. North Montgomery	*	*
24. Northern Chester	*	*
25. Reading-Muhlenberg	*	*
26. Schuylkill County - North	*	
27. Schuylkill County - South	*	
28. Upper Bucks	*	*
29. West Side - Dingston	*	*
30. Wilkes-Barre East	*	*
31. Pottstown Annex	*	

Note: Schuylkill County - South participated in the student SETC survey. The food service teacher did not participate in the questionnaire/interview.

APPENDIX D

Data Summary of Teachers Participating in this Survey

APPENDIX D

Data Summary of Teachers Participating in this Survey

(N=48)

Code	SETC	Achievement	Age	Sex	Ind* Exp.	Tea* Exp.	Ed*	Concern*	Occupational Specialization
01	27.6	087.2	47.5	0	30	02	2	0	4
02	23.4		22.5	0	04	01	7	1	6
03	25.7		42.5	0	16	03	3	0	3
04	25.5		47.5	1	00	04	7	0	6
05	27.8		47.5	0	30	05	3	0	3
06	26.8		42.5	0	23	11	2	0	5
07	15.9		42.5	0	20	03	7	1	6
08	19.2		42.5	0	20	05	4	0	4
09	24.5	107.9	47.5	0	25	04	4	0	4
10	19.3		27.5	0	08	06	4	1	3
11	13.8		47.5	0	42	07	4	0	5
12	26.8		37.5	0	21	01	3	0	5
13	19.5	111.7	47.5	0	40	11	2	0	4
14	21.8	118.3	37.5	0	26	02	2	0	5
15	16.3	096.0	37.5	0	12	06	4	1	3
16	17.6		32.5	0	18	07	3	0	5
17	19.4		32.5	0	15	07	3	0	3
18	23.5		47.5	0	31	10	7	0	6
19	30.0	112.5	22.5	1	05	01	7	1	6
20	11.2		47.5	0	35	08	7	0	6
21	22.1		32.5	0	11	04	2	0	5
22	26.7		32.5	-	11	02	4	0	4
23	21.5		37.5	0	20	05	3	1	4
24	22.2	089.7	37.5	0	12	03	3	0	4
25	27.3		27.5	0	06	05	3	0	3
26	27.8	110.0	47.5	1	08	06	3	0	4
27	28.0	112.7	47.5	1	09	08	7	0	6
28	20.3		32.5	0	11	06	4	1	4
29	24.8		47.5	1	14	30	7	0	6
30	19.0		22.5	0	08	02	4	0	3
31	18.4		32.5	0	12	10	7	0	3
32	25.8		22.5	0	06	03	5	0	5
33	16.2		27.5	1	09	01	5	0	1
34	18.6		27.5	0	03	01	7	1	6
35	27.9	123.4	32.5	0	10	07	5	0	5

Data Summary of Teachers Participating in this Survey (cont.)

Code	SETC	Achievement	Age	Sex	Ind* Exp.	Tea* Exp.	Ed*	Concern*	Occupational Specialization
36	24.7	117.3	22.5	1	02	02	7	1	6
37	17.9	112.6	47.5	0	22	06	5	0	5
38	17.6	111.6	27.5	1	00	03	7	0	6
39	10.8		47.5	1	03	17	7	0	6
40	16.8		42.5	1	13	03	7	0	6
41	20.3		47.5	0	22	09	4	1	4
42	22.3		47.5	0	33	07	3	1	4
43	25.0	096.5	37.5	1	03	10	7	1	6
44	20.0	111.0	47.5	1	24	09	7	1	6
45	26.0	085.9	32.5	0	12	04	5	0	2
46	17.2		47.5	0	39	03	3	0	3
47	25.7	113.0	42.5	1	11	07	7	0	6
48	23.3		32.5	0	14	03	3	0	3

APPENDIX E

Item Analysis and Total Test Data for the Competency Exam

Item Analysis and Total Test Data for the Competency Exam

Number of students: 119
Number of test items: 239
Test Mean: 104.18
Standard Deviation: 23.29
Test Range: 126
Kuder Richardson 20 Reliability: 0.913
Mean difficulty of items on the test: .436
Average item-total score correlation for the questions in this test: 0.272

Distribution of the Test Items in Terms of the Percentage of Students Passing Them

Percent Passing	Number of Items
0 - 19	20
20 - 39	92
40 - 59	76
60 - 79	38
80 - 100	13

Distribution of the Test Items in Terms of Item-Total Score Correlations (Point Biserial Correlations)

Correlations	Number of Items
Negative - .10	56
.11 - .30	84
.31 - .50	64
.51 - .70	26
.71 - .90	9
.91 - 1.00	0

Keyed Frequency, Chosen Frequency and Average Difficulty of the Test Choices

Choices	% Keyed	% Chosen	Ave. Diff.
A	0.297	0.247	0.421
B	0.243	0.262	0.454
C	0.272	0.255	0.427
D	0.180	0.202	0.443
E	0.008	0.007	0.580

% Keyed - Frequency of a given key divided by the number of items.

% Chosen - Frequency of a given response divided by the total number of responses to all items (except omits).

Ave. Diff. - Total of all difficulty values for items with a given key divided by the number of such items.

Summary Data for Each of the Teachers (Schools) Participating in the Competency Exam

Student Number	Mean	Standard Deviation	KR-20	Standard Error	Range High	Range Low
9	86.8	20.95	.887	6.98	116.0	58.0
17	107.4	16.88	.835	4.09	134.0	73.0
3	112.3	2.52	-3.642	1.45	115.0	110.0
3	121.7	3.78	-2.171	2.18	126.0	119.0
9	95.8	25.68	.927	8.56	148.0	67.0
4	113.8	23.75	.924	11.88	130.0	79.0
7	90.5	15.90	.810	6.01	109.0	73.0
6	107.0	21.63	.902	8.83	146.0	83.0
9	112.3	29.48	.948	9.83	150.0	70.0
7	118.4	10.53	.628	3.98	136.0	108.0
7	116.9	16.48	.823	6.23	136.0	96.0
6	111.2	9.33	.632	3.80	123.0	95.0
5	111.4	22.72	.917	10.16	145.0	81.0
5	74.0	36.64	.971	16.39	124.0	40.0
8	83.5	16.22	.827	5.74	107.0	58.0
14	112.5	24.30	.925	6.49	165.0	59.0

APPENDIX F

SETC Student Responses Per Teacher

Number of Student Responses Per Teacher for the SETC Test.

Teacher No. (N=48)	Number of Students Responding (N=495)
1	14
2	18
3	9
4	3
5	11
6	5
7	9
8	9
9	14
10	11
11	8
12	6
13	14
14	11
15	8
16	14
17	9
18	15
19	4
20	14
21	9
22	4
23	10
24	16
25	11
26	13
27	13
28	15
29	14
30	9
31	7
32	7
33	13
34	8
35	10
36	12
37	16
38	11
39	7

Student Responses (cont.)

Teacher No. d(N=48)	Number of Students Responding (N=495)
40	5
41	7
42	6
43	20
44	11
45	14
46	6
47	8
48	8

VITA

Margaret Jean Simpson was born June 17, 1933 in Spanishburg, West Virginia, daughter of Mr. and Mrs. A. V. Mills. She attended public schools in Virginia and West Virginia, graduating from Spanishburg High School in 1951. She received her Bachelor of Science in Home Economics from Concord College, Athens, W. Va. in 1954 and a Master in Counseling from Lehigh University in 1968.

Ms. Simpson was a teacher of home economics at McComas High School from 1954-1957. She attended graduate school in the Department of Hotel and Institutional Administration at Pennsylvania State University during 1957-58. From 1958 to 1960, Ms. Simpson taught home economics at Temple City High School, California. In 1969, she began teaching food service at the Bethlehem Vocational Technical School and is now employed at Lehigh County Vocational Technical School. She has also taught part time at Northampton Community College and Lehigh County Community College.

Her professional membership includes the American Personnel and Guidance Association; the Pennsylvania Guidance Association; and the National Educational Association. She is also serving as a member of a committee to evaluate vocational technical schools in Pennsylvania.

She was the recipient of a research grant from the Research Coordinating Unit, Department of Education, state of Pennsylvania. She served an internship during 1975 with the Eastern Regional Vocational Field Office under the direction of Dr. Sydney Jaffe. She is listed in Who's Who in American Colleges and Universities, 1954.